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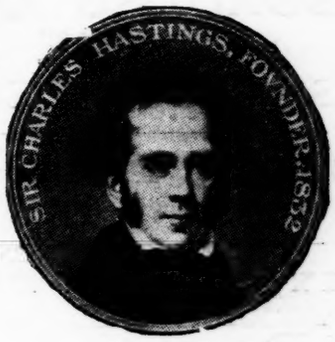

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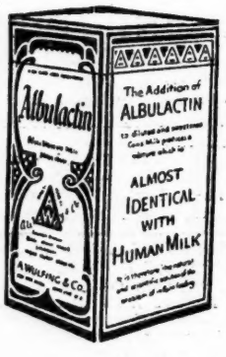

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A British Medical Association Lecture

ON

SPECIFIC SENSITIVENESS AND ANAPHYLAXIS.*

BY

H. H. DALE, C.B.E., M.D., F.R.S.,

HEAD OF THE DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY, MEDICAL RESEARCH COUNCIL.

You have honoured me with an invitation to lecture to you on some pharmacological subject. I have never felt able to attribute a rigid significance to those divisions which, for our own convenience, we make in the body of medical science, and I shall venture to assume that the form of your invitation merely indicated that you were good enough to desire that I should speak on some subject in which my own work has given me a direct interest. I propose to devote my remarks to a subject which seems, at the moment, to have a great and growing interest for workers in clinical medicine—namely, the group of specific idiosyncrasies, which definitely includes hay-fever, many cases of spasmodic asthma, and specific urticaria, and seems destined to extend its boundaries to include many cases of eczema, and, in the view of some enthusiasts, epilepsy, and various other conditions. The clinical study of these conditions, for which most general practitioners have daily opportunities, I can only approach as an interested outsider. Fortunately there are several recent and readily available publications dealing comprehensively with this side of the question. Dr. John Freeman lectured on the subject to the Royal Society of Medicine, Mr. Frank Coke to a meeting analogous to this, and at the annual meeting of the British Medical Association last July illuminating discussions were opened by Sir Humphry Rolleston and Dr. Harold Barber. The clinical investigation of these conditions made rapid strides in the United States of America during the war, and the publications of Chandler Walker, Ramirez, and others abound in interesting detail. My object is to endeavour to put before you the conception as to the meaning of those phenomena to which experimental evidence seems definitely to point.

For the experimental basis of any conception which we may form of these manifestations of specific sensitiveness or idiosyncrasy we must look to the investigation during the past fifteen years of the phenomenon known as anaphylaxis. I shall make no attempt at a review of the confused and wellnigh overwhelming mass of literature which has accumulated round this phenomenon. I shall not even try to put before you the various theories as to its meaning, with the points of evidence for and against them. I shall, quite frankly, put before you, and commend to your acceptance, the theory which alone seems to me adequate, secure in the conviction that it is the only one that can enable you to bring the facts of clinical experience into coherent relation with those of laboratory experiment. It is fair that I should state that there are still many who do not accept the view which I shall put forward; but I believe I shall do you a greater service by presenting one clear and consistent scheme, than I should by introducing a confusion of rival theories.

The First Recognition of Anaphylaxis.

The first recognition of anaphylaxis as a definite phenomenon was due to Richet. He was working on the substance to which sea-anemones owe their stinging properties—a subject which might seem almost peculiarly remote from the problems of general pathology and practical medicine, though you will note that the effect of the poison, in common experience, was to produce a reaction of an urticarial type, where locally inoculated by the thread-cells of the animal. Richet determined the toxic dose of a preparation for dogs, and, having given a subtoxic injection to a dog, he gave the same animal a second similar injection a few weeks later, with the object of producing an immunity to the poison. The result, on the contrary, was an immediate and violent reaction, with flushing and irritation of the skin, vomiting, purging, haemorrhage from the intestine, and profound collapse. As he was working with a substance which, in larger doses, produced a reaction of somewhat similar though less rapid type in the normal dog, Richet naturally supposed that the condition which he had accidentally produced was an artificially lowered resistance to the natural poison, the direct opposite of immunity or prophylaxis, and he named the condition "anaphylaxis."

The True Meaning of the Phenomena.

The name "anaphylaxis" has persisted and has passed into general use in medical literature, though it soon became clear that the conception which gave rise to it was not altogether correct. Evidence quickly accumulated which showed that any perfectly harmless protein, provided that it came from a species other than that of the animal into which it was injected, also behaved as an acute poison when it was injected a second time into an animal which, some weeks previously, had received an injection of the same substance. This phenomenon, indeed, had been observed and incidentally recorded by Magendie as long ago as 1839, and by several observers in the intervening period. Only after Richet's work, however, was it systematically studied and recognized as a regularly occurring phenomenon. The symptoms produced by reinjection into an anaphylactic animal were found to be the same, whatever the protein to which it exhibited this abnormal sensitiveness, though they differed according to the species of animal used for the experiment. The guinea-pig, in which the phenomenon was practically rediscovered in America, was found to exhibit the condition with great regularity, and has been the subject of a large proportion of the experimental investigations.

Anaphylaxis, then, is not to be regarded as a weakened resistance to a natural poison; it is rather a condition produced by previous introduction into the system of a foreign protein, in which the same protein, but not any other, acts on subsequent injection as an acute poison, whether it has normally any poisonous properties or not.

The Relation of Anaphylaxis to Immunity.

Anaphylaxis, though superficially so different, soon proved to have many points in common with immunity. The condition, we may say with certainty, is due to the formation of some kind of antibody. In the guinea-pig the specific sensitiveness can be transferred to a fresh animal by injecting the blood or serum of one which has been made actively sensitive; there is a "passive anaphylaxis," due to the transfer of ready-formed antibody, and corresponding to passive immunity. But there are features of this passive anaphylaxis which seem, at first sight, paradoxical. It does not appear immediately, even when the serum containing the antibody is injected directly into the circulation. It is not perceptible until some six hours have elapsed, and not completely developed for twenty-four hours. We can understand why, after a first injection of a protein, a period of ten days or a fortnight must elapse before the animal becomes sensitive; as in the better known reactions of immunity, time is needed for the response leading to the formation of antibody. But when the antibody is ready formed, one would expect the condition which it produced to appear immediately after its injection into the blood, and to be then at a maximum.

There is another paradox. Not only the serum of an anaphylactic animal will convey anaphylaxis; that from an animal immunized against a foreign protein, by a series of properly spaced injections, will convey this passive anaphylaxis even more efficiently—that is, in a much smaller dose. If we take a rabbit and give it a series of injections of, say, egg albumen, its serum develops a precipitin—that is to say, it acquires the property of forming an obvious precipitate when mixed with egg albumen in very high dilutions. Now a very small dose of the serum of such a rabbit, injected into a normal guinea-pig, will make the latter within twenty-four hours acutely anaphylactic to the normally innocuous egg albumen. There are strong reasons for identifying the so-called precipitin with the anaphylactic antibody; yet the serum of a guinea-pig made actively sensitive to a protein forms no visible precipitate with that protein, while the animal whose serum has acquired a high precipitating quality for a protein is not anaphylactic to it, but immune.

As so often happens, these seeming contradictions probably provide the real clue to the nature of the phenomenon with which we are dealing. Weil studied the fate of the precipitating antibody, injected into a normal guinea-pig, during the twenty-four hours which elapsed before the animal became fully sensitive. He found that it rapidly disappeared from the blood, and that when sensitiveness was fully developed the antibody had nearly all vanished. If the

* The substance of a lecture delivered to the Sheffield Division of the British Medical Association.

animal, which had thus become acutely sensitive to a foreign protein, received a further large injection of the serum containing precipitin for that protein, the immediate effect was not to enhance but to suppress the sensitiveness. Antibody freely circulating in the blood was therefore not sensitizing, but protective in action; the antibody must be somehow changed, or must be differently located, before it could render the animal sensitive.

A satisfactory interpretation of these facts would be provided by the supposition that the antibody must get out of the blood and into the living cells of the tissues before it can render the animal sensitive. On this supposition the occurrence in the living cell protoplasm of an aggregation of its colloidal particles, of a reaction analogous to the precipitin reaction of an immune serum, as seen in a test tube, would constitute the poisonous action. The fact that the animal is violently and even lethally poisoned by a normally innocuous protein would be explained by the fact that an antibody, which in contact with that protein forms a precipitate, is located in the cells of vital organs. This is the view which commends itself to me; but, before presenting to you some more direct evidence in its favour, I must give some further details as to the nature of the poisonous action.

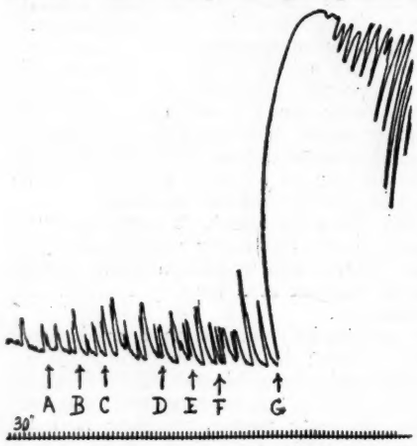

FIG. 1.—Shows the specificity of the reaction. The plain muscle was taken from a guinea-pig rendered sensitive to horse serum by an injection of 0.0025 c.cm., given fourteen days previously. The doses added to the bath were in each case 0.1 c.cm., making a concentration of 1 in 2,500 of A sheep serum, B cat serum, C rabbit serum, D dog serum, E human serum, F egg white, and finally at G horse serum. (From the *Journ. of Pharm. and Exp. Therap.*, iv, p. 214.)

The Nature of the Symptoms.

I have said that, whatever the protein producing the condition, the picture of the anaphylactic poisoning is practically constant in the same species. In the different species the symptoms are superficially very dissimilar. When the protein which is anaphylactic is injected intravenously, the guinea-pig to it dies in a few minutes, and in an extraordinarily dramatic manner, the cause of death being a tense contraction of the plain muscle surrounding the bronchioles, which in this species are small in diameter and provided with a rich and folded mucous membrane. The rabbit dies of right-sided heart failure, due to excessive resistance developed in the branches of the pulmonary artery. In the dog the central feature of the effect is a collapse of the circulation, with accumulation of a large part of the blood in the enormously distended liver. Certain changes in the blood are present, though in varying degrees, in all the species—leucopenia and delayed coagulation, changes which are associated with the action of any poison injuring the vascular endothelium. In all, recovery from an attack is associated with eosinophilia. Superficially the general aspect of the shock is very different in these three species, but when we come to analyse the effects we find in all cases a complex, of which the essential features are an intense stimulation of plain muscle and a poisoning of the endothelial wall of the blood capillaries. One or other of these effects predominates, and is locally prominent, according to the special conformation or liability of the tissues in the different species; but fundamentally the action is of the same kind in all. The view that we are dealing with one common type of poisoning, as exhibited by these different species, is confirmed by the observation that there is a whole group of natural poisons, partial cleavage products of proteins, formed by bacterial or other ferments, which produce these same pictures of intoxication, with the same striking differences, in the different species. Among such bodies I may mention the base known as histamine, a base easily derived from the amino-acid histidine, which is a constituent of almost all proteins. Laidlaw and I some ten years ago described the intense activity of histamine, and drew attention to the fact that in each species it produced a picture of intoxication resembling that seen in the anaphylactic shock. This has led some observers to suggest that histamine is actually formed in the anaphylactic animal, when the protein to which it has been sensitized is again injected. A suggestion of the part played by histamine in such phenomena appears again, as we shall see, in connexion with current views as to the nature of asthma. I have never been able to accept such a view of the events in the anaphylactic shock, or any other which attributes the symptoms to the formation of a poisonous product in the blood, and the action of this as the directly toxic agent. All such views are, for me, excluded by the simple fact that simultaneous injection of the antigen and the antibody concerned in the anaphylactic reaction, so that they meet in the blood, has no perceptible effect of any kind. So far as I am able to judge, the simple view that the anaphylactic condition is due to location of the antibody in the cells of the vital tissues, where its reaction with the antigen is the cause of the symptoms, suffices to account for all the phenomena which can with certainty be regarded as anaphylactic.

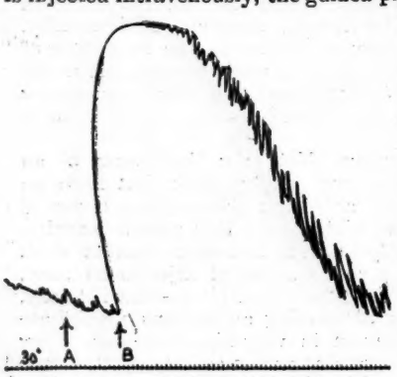

FIG. 2.—A similar experiment, the guinea-pig being made sensitive to egg white by an injection of 0.1 c.cm. twelve days previously. At A 0.5 c.cm. horse serum, at B 0.1 c.cm. egg white. (From the *Journ. of Pharm. and Exp. Therap.*, iv, p. 180.)

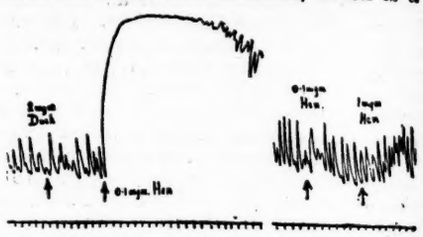

FIG. 3.—Shows that the reaction discriminates between the pure egg albumen of the hen and the duck. Guinea-pig sensitized with 1 mg. of pure hen albumen twenty-one days previously. No response to duck albumen. After the first effective dose of hen albumen the plain muscle is desensitized, and no longer responds to this substance, even in a ten-fold dose. (From the *Biochemical Journal*, xiii, p. 253.)

Direct Evidence of Cellular Sensitization.

Returning to a consideration of this simple conception, we have seen that a characteristic feature of the anaphylactic reaction, in the guinea-pig especially, is stimulation of plain muscle. If the effect is due to antibody fixed in the cells, we ought to find that the plain muscle of an actively anaphylactic guinea-pig, removed from the body and freed from all blood, will respond by contraction to application of the protein to which the guinea-pig was sensitive, but not to any other. We ought to find that plain muscle from a guinea-pig rendered passively sensitive behaves in the same way. We ought further to find that the same antibody as conferred the sensitiveness, if present in excess in the fluid surrounding the plain muscle, will protect it from the protein to which it has been made sensitive, so that it no longer responds. In other words, we should be able to make *in vitro* artificial combinations corresponding to the conditions of active and passive anaphylaxis and of true immunity.

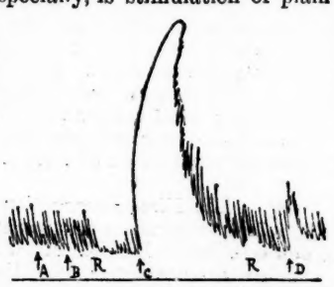

FIG. 4.—Shows that the reaction discriminates between individual proteins of the same serum. The guinea-pig was sensitized with 1 mg. of the euglobulin of horse serum thirteen days previously. At A and B 1 mg. and 10 mg. of the pseudoglobulin of horse serum were added to the bath without effect; at C 10 mg. of the euglobulin of the same serum were added. (From the *Biochemical Journal*, x, p. 422.)

There is another condition, which we ought to be able to illustrate in such experiments, and which I want clearly to differentiate from immunity—namely, the condition which

has somewhat clumsily been called "antianaphylaxis," and which I should prefer to call "desensitization." When a sensitive guinea-pig is given a sufficient dose of the antigen to cause symptoms, but not death, especially if the antigen is slowly introduced, so that the dose can be relatively large without killing the animal, it is found on recovery to have lost its sensitiveness, and to remain normally insensitive for a week or so. The antibody which its cells contained has been used up; more must be formed and fixed to the cells before the guinea-pig is again anaphylactic. Contrast this with the condition which I have called "true immunity," in which plenty of antibody is present, but in such excess in the body fluids as to catch the antigen and put it out of action before it can reach the sensitive cells.

Now it is very simple to demonstrate all these phenomena on a slip of plain muscle taken from the guinea-pig after death. This is carefully freed from all traces of blood or serum by perfusing Ringer's solution through its vessels, and it is then suspended in a small volume—100 c.cm. or so—of clean Ringer's solution, kept at body temperature, and saturated with oxygen. To this bath the antigen can be added, and the response of the strip of plain muscle recorded by fixing one end and attaching the other to a light lever, writing on a slowly revolving drum. The tracings show the ease with which the various phenomena can be demonstrated; they are taken from a series of papers which I have published since 1913.* (See Figs. 1 to 5.)

You will agree, I hope, that these figures give direct support to the conception that anaphylaxis is due to sensitization of the cells by the presence in them of the precipitating antibody, excess of which in the surrounding fluid protects the sensitive cells and constitutes an immunity.

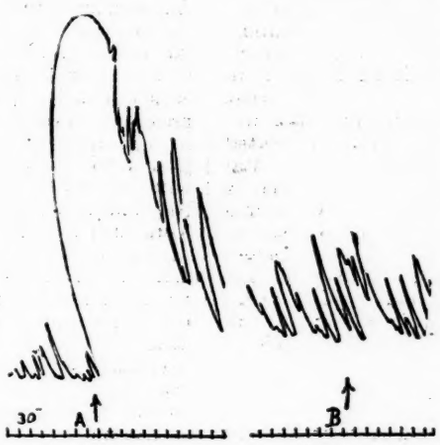

FIG. 5.—Plain muscle from a guinea-pig which has been rendered *immune* to horse serum, showing that, when washed free from the protective excess of antibody in the blood, it is sensitive, like that from the anaphylactic animal. At A 0,5 c.cm. of horse serum was added to the bath; at B, 0.5 c.cm. of sheep serum. (From the *Journ. of Pharm. and Exp. Therap.*, iv, p. 194.)

Non-specific Sensitiveness and Non-specific Desensitization.

So far we have been dealing with the experimental phenomenon of anaphylaxis as seen in the laboratory, and, before leaving it, there is one other point which I want to make clear, as it has some bearing on our further discussion. We have seen that the anaphylactic sensitiveness is highly specific, discriminating between similar proteins from different species, and even between different proteins from the same species. But the animal which is highly anaphylactic, whatever the protein to which it has been made sensitive, shows also some degree of enhanced sensitiveness to naturally poisonous substances, having a type of action resembling that seen in the true anaphylactic response. The upholders of the alternative theory, which supposes that the anaphylactic shock depends on the formation of a poison in the blood, have shown that normal guinea-pig's serum, when treated with various colloids and suspensions, acquires a toxicity of such a kind that it kills a normal guinea-pig with symptoms more or less closely resembling those of the anaphylactic shock. To such a toxic serum the anaphylactic guinea-pig usually exhibits an abnormal sensitiveness, so that the cell protoplasm would appear to have acquired a more general instability, an increased liability to this kind of toxic disturbance, in addition to its highly specific idiosyncrasy of reaction to one, normally harmless, protein in particular.

In this connexion also mention should be made of another point of contact between true anaphylaxis and non-specific intoxications. We have seen that the anaphylactic guinea-pig, which recovers from the effects of reinjection, is desensitized for a week or so. An anaphylactic guinea-pig, which recovers from a non-fatal dose of one of the natural poisons producing similar symptoms, is found to be less sensitive to its specific antigen than another, similarly sensitized, but not treated with the non-specific poison. The full sensitiveness is, in this instance, recovered in twenty-four hours or so, and there is no evidence as to whether the temporary loss of sensitiveness is due to detachment of antibody from the cells, or to formation of some substance which inhibits aggregation in the protoplasm. The phenomenon is worthy of note, as having its parallel in a certain method of treatment, as we shall see later.

Anaphylaxis in Man.

Turning now to a more practical aspect of our problem, we have to inquire what bearing these phenomena, exhibited by guinea-pigs and other animals in the laboratory, have upon conditions seen in man. The first and most obvious application is to the effects of injecting horse serum into human patients. You will be familiar with the fact that a certain proportion of patients, as the result of a first injection of horse serum, exhibit, after an interval of some ten days, a reaction which has many features suggesting that we may be dealing with an anaphylactic phenomenon. The commonest symptoms point clearly to an injury of capillary endothelium, leading to urticaria, swelling or pain in the joints, and sometimes facial oedema, accompanied by constitutional disturbance. The latent period of some eight to ten days is highly suggestive; it is the interval needed in the guinea-pig for the appearance of the anaphylactic condition. We are led to suspect that in this interval an antibody has been produced and located in the tissue cells the sensitiveness of which gradually rises, till reaction with some remnant of the original dose of horse-serum protein causes the outbreak of symptoms. The suspicion is strengthened when we consider the result of a further injection into such a patient, at an interval of months or even years. The phenomena have, fortunately, not that certainty of production to which we are accustomed in the guinea-pig, but a certain number of patients receiving such a second injection give a reaction of a much more clearly anaphylactic type. The onset is almost immediate in the neighbourhood of the hypodermic injection, and within a short time a general dermal and constitutional reaction of much greater than normal severity appears. Oedema of the glottis may occur, and, of course, be a dangerous feature of the condition. In a number of cases where such a second injection has been made intravenously the result has been rapidly fatal. Here we have quite obviously the conditions which, in other animals, have been found to produce a typical anaphylaxis, and there can be little doubt as to the nature of the phenomena with which we are dealing. Fortunately it is clear that the anaphylactic condition is produced in man with nothing like the fatal regularity with which it appears in some of the animals used in the laboratory. If there is reason to suspect its presence, a small hypodermic injection of the serum should reveal it without dangerous symptoms, and at the same time begin the desensitizing process, which must be completed by carefully graded intravenous doses before a large intravenous injection can be undertaken with safety. When we bear in mind that, after the first year of the late war, practically every wounded man in our armies received an injection of antitetanic horse serum, and that a large number must subsequently have received treatment by an immune horse serum of one kind or another, the paucity, in relation to the total number, of reports of dangerous or fatal anaphylactic shock seems to indicate that such sensitization in man is the exception rather than the rule.

Indeed, of the total number of fatalities recorded as the result of injecting horse serum into man, a surprisingly large proportion have occurred after injections into patients who have never received serum before—into patients, that is to say, who had a natural sensitiveness to horse serum of an intensity but seldom appearing as the result of a preliminary injection. A large proportion of such cases, again, has occurred in subjects of asthma: but I am not aware of any data which would entitle us to connect them definitely with an asthma due to horse sensitiveness. It would certainly not be surprising to find such a connexion established. This leads us to another part of our subject, but before

* Records were also exhibited, which will be published shortly by Dale and Kellaway, showing that the anaphylactic plain muscle can be protected from the effect of the antigen by adding to the saline bath an excess of the antibody which was used to sensitize it passively.

leaving the question of serum sickness I should like to mention one further point of some theoretical interest. There are numerous records of more than one rash following a single injection of horse serum, the rashes following one another with an interval of a few days. I have searched and inquired, but have found no record of more than three such distinct rashes in one patient following a single injection. Now, there are three distinct proteins in horse serum, and it is possible in the guinea-pig to produce a separate sensitiveness to each; and these do not develop simultaneously, but at different intervals from the primary injection.

Naturally Occurring Specific Sensitiveness ("Toxic Idiopathies").

Turning now to the question of the different types of specific sensitiveness, which appear to be inborn or to develop spontaneously in some human subjects, the case of hay fever or hay asthma seems fairly clear. It is common ground that we have, in this case, a cellular sensitiveness to the proteins of certain pollens which are easily borne on the wind. In this country grass pollens are chiefly responsible; in the United States they have a second outbreak of a similar condition in the autumn, due to the pollen of a composite, the ragweed, which is very abundant there. The work of Noon, Freeman, and others has shown that the sensitiveness is not restricted to the conjunctiva and respiratory mucosa; the reaction occurs in these regions especially, because the proteins of the pollen can there easily reach the sensitive cells. A typical urticarial wheal is formed on the skin, however, if the pollen is applied to a lightly scarified area; and Freeman, by getting a subject of hay fever to ingest grass pollen, produced in him a vigorous diarrhoea. The skin test can be used to discover the species of pollen to which the sensitiveness and the attacks are due.

Very much on the same footing are the numerous cases of asthma which, by investigations in recent years, have been proved to be excited by the inhalation of minute quantities of material originating from some particular species of animal—horse, cat, or dog being, apparently, the commonest culprits. The substances exciting reactions of this type are mostly particles of epidermal origin—hair or scurf from the skin—and the patients give a specific skin reaction to proteins extracted from the material responsible and applied to a minute, very superficial cut. Usually, but not always, the patient sensitive to the epidermal structures shows also a sensitiveness to the blood serum of the same species. It is hardly a matter for surprise, therefore, that there are cases on record in which asthmatic patients have exhibited a fatal sensitiveness to horse serum, injected with a therapeutic or prophylactic aim. Many cases have been brought to light in which asthma, coming on at night, was associated with a sensitiveness to chicken feathers, and disappeared when a pillow stuffed with horsehair or vegetable fibre was substituted for a feather pillow.

Now, cases of this kind present many points of close similarity to the condition of artificial sensitiveness or experimental anaphylaxis. An objection to their identification has been raised on the ground that the so-called natural idiosyncrasies cannot be passively transmitted. I admit that such an objection would be fatal if we were to adopt the humoral theory of anaphylaxis, attributing the condition to the presence of an antibody in the blood, with which the antigen there reacts. But on the theory which I have commended to you, which attributes sensitiveness to an antibody present in the cells, the objection has little weight. It is true that anaphylaxis can be transferred from the anaphylactic to a normal guinea-pig, at a time when the anaphylactic condition is newly developed. But after an interval of months from the primary injection, though the sensitiveness is still acute, passive transfer often fails; the antibody has practically disappeared from the blood. We have only to regard these cases of human sensitiveness as extreme examples of this condition—and the sensitiveness is, indeed, often of an extreme order—in which the antibody, if it ever was in the blood, has usually become located exclusively in the cells, to bring the two kinds of phenomena fully into line. There are, moreover, a few cases on record in which the blood was by no means free from antibody. Ramirez records a case in which, after receiving a transfusion of blood from a fellow patient, who happened to be a subject of horse-sensitiveness, a patient was seized with asthma, for the first time in his life, on going for a drive in a horse-drawn carriage during his convalescence.

When attacks of asthma or urticaria, or both, are excited by the ingestion of certain articles of animal or vegetable food, another difficulty of explanation presents itself. The cases present similar phenomena of specificity, and respond as well to the diagnostic skin reaction as the former class. But it is contrary to experience in experiments on anaphylaxis that the symptoms should be excited when the protein is swallowed, and, therefore, has to run the gauntlet of the digestive juices before absorption. I believe the fact to be that we do not, by experimental procedures, succeed in producing such extreme sensitiveness as that which appears in certain human patients. Even the minute traces of unbroken protein which pass the alimentary mucosa, possibly owing to some fault of digestion or absorption, seem sufficient, if they are of the specific kind responsible for the condition, to cause an outbreak of urticaria or an attack of asthma. Sensitiveness to the proteins of certain molluscs and crustaceans, or of certain fruits, such as the strawberry, is not uncommon. They cause little trouble, since the patient learns that he cannot tolerate these foods, and avoids them. When the sensitiveness is directed to a protein occurring in some common article of diet, such as wheat, egg, potato, or milk, the cause of the condition is often not identified by the patient, and requires a skin test for its detection. Even when the diagnosis is complete, treatment by elimination of the offending protein from the diet may present great practical difficulty.

Other Features Concerned in Asthma and Similar Conditions.

Time alone can show what proportion of the cases of spasmodic asthma and urticaria will ultimately be referable to this type. At present the tendency is for the proportion to increase, as investigators gain experience in the application of the specific tests, and have a growing range of animal and vegetable proteins under suspicion and available for use. There are other factors, however, which are generally credited with importance, and which are often regarded as incompatible with the conception of the condition as due to sensitiveness to a foreign protein.

One such factor is heredity; but it is clear, from some interesting family trees published by Freeman, that the inheritance is not of sensitiveness to a particular protein, or even of a certain type of reaction, but of the tendency to acquire some kind of idiosyncrasy for foreign proteins. A father subject to hay fever may have among his children one suffering from horse-asthma and another from some idiosyncrasy to a particular food, and so on. If the inheritance is simply of the tendency to respond, by forming cellular antibody, to some chance parenteral introduction of a trace of foreign protein, the hereditary tendency is in no way inconsistent with the conception which we have been discussing.

Another factor in the causation of asthma or hay fever which has also been regarded as inconsistent with the theory of sensitization by foreign protein is that of neurosis. Many cases are on record in which the sight, or even the mental image of the supposed source of the sensitizing protein, without any possibility of its actual presence, has been sufficient to induce an attack—the sight of an artificial rose, a film at the picture palace representing hay-making, or, in a case recorded by Freeman, a vivid description of a field of mustard in flower. I have already disclaimed any experience of clinical matters, but as an experimental worker, who has read something of Pavlov's more recent work, I find it difficult to believe that any real incompatibility exists between such phenomena and the view that the condition has its origin in specific sensitization to foreign protein. We know from Pavlov's work that in a dog, an animal of relatively simple psychical development, it is possible, by daily association of a sound or a skin stimulus with food or acid in the mouth, to produce a new psychical reflex, so that the sounding of the note or the stimulation of the prescribed skin area now suffices by itself to evoke a secretion of saliva. I do not think it is difficult along such lines to suppose that a man who has become sensitive to rose pollen, and has had repeated experience of an association between the presence of roses and suffocating constriction of his bronchial tubes, might ultimately develop a new reflex, connecting the visual image of roses with the nervous control of the bronchioles, so that the sight of an artificial rose would eventually suffice to excite an attack of asthma.

There are, I gather, other cases of asthma in which the attacks seem to be excited by some non-specific chemical stimulus—in which, for example, a digestive disturbance,

a mild enteritis, however produced, is sufficient to produce an attack. It would appear that in such cases the absorption of poisonous cleavage-products of proteins may be the exciting cause, and even histamine has been held by some writers to be responsible. If you have in mind what I stated, in dealing with experimental anaphylaxis, concerning the generally enhanced sensitiveness of the anaphylactic animal to poisons of this type, you will find no difficulty in reconciling the occurrence of such attacks with a specific, anaphylactic origin of the asthmatic condition, in the patient in whom they occur. Nor should the evidence brought forward by Auld and others, as to the improvement of such patients under treatment with small injections of poisonous protein derivatives, such as Witte's peptone, present much difficulty of interpretation, if you remember my statement that the anaphylactic guinea-pig can be partially desensitized by a similar non-specific intoxication.

I am by no means suggesting that every case of so called asthma is of the anaphylactic type. Even if the so-called cardiac asthma and renal dyspnoea are excluded, I imagine that there are many cases in which the symptoms are asthmatic, but which have a different origin altogether. When the question is raised of sensitization to the proteins of infecting organisms, the distinction between a primary toxic action of their products and an anaphylactic reaction to their proteins becomes difficult to draw. Especially is this the case with an infection of the respiratory passages themselves. There seem to be some clear cases, however, of infection at a distant site, causing, not a local trouble, but a genuine general anaphylactic reaction. But the discussion of the relation of anaphylaxis to bacterial proteins, full of suggestion though it is for a rational conception of the genesis of certain chronic morbid conditions, would lead us into such inadequately charted waters that I shall not attempt the rôle of pilot. My object has been to provide, from the experimental side, a more definite conception of the nature of those conditions in which sensitization to foreign proteins is clearly established; such a conception as may help to focus ideas, to stimulate observation, and even to rationalize treatment.

BIBLIOGRAPHY.

Freeman: *Lancet*, 1920, ii, p. 229.
Coke: BRITISH MEDICAL JOURNAL, 1921, i, p. 372.
Rolleston and others (Discussion): Ibid., 1921, ii, p. 231.
Barber and others (Discussion): Ibid., 1921, ii, p. 554.
Walker: *Journ. Med. Research*, XXXVI, 1917, pp. 231, 237.
Ramirez: *New York Med. Journ.*, 1920, pp. 112, 115; 1921, p. 320. *Journ. Amer. Med. Assoc.*, lxxiii, 1919, p. 984.

A British Medical Association Lecture

ON THE

DIAGNOSIS AND TREATMENT OF INTRATHECAL TUMOURS OF THE SPINAL CORD.*

BY

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In this lecture I shall not endeavour to advance any original ideas, but will present certain aspects of an important topic which, although they are familiar to the neurologist, are, I fear, not so well known as they ought to be to the general body of the profession. The subject is important because we have in the treatment of intrathecal tumours of the spinal cord one of the most, if not the most, reliable developments of the surgery of the nervous system, and yet I am convinced that in this country many cases which could be readily and almost dramatically cured are allowed to pass without recognition or radical treatment and to run unaided their inevitable course to death.

I propose to illustrate my remarks by showing two patients, both operated upon sufficiently long ago to demonstrate what may reasonably be called "end results." The first will serve to illustrate all the salient points of an intrathecal tumour; the second is one of a more obscure condition liable to be confused therewith.

H. H., a motor driver, aged 43, came under my observation in the Manchester Royal Infirmary in March, 1920, when I was asked to see him by my colleague, Dr. Ramsbottom, and the first point which I must note is that, as these cases rarely come directly before the surgeon, it will quite properly lie with the general practitioner and the physician to make the preliminary diagnosis, without which nothing further can be done.

The patient, whose complaint may be briefly described as "paraplegia," gave a clinical history of the utmost importance. About the end of 1918, while in an army hospital with an attack alleged to be one of influenza, he noticed what is described as an indefinite pain about and just below the left costal margin. At first this pain was felt only in the morning, and it passed away throughout the day, but it tended gradually to become more constant. In March of 1919, when demobilized, he had no great amount of pain, but suffered a little from what he and his advisers called lumbago. He was, however, able to return to civil work and to continue thereat until October. During this period he noticed a gradually increasing weakness of the left lower limb, which at first used occasionally to "give" a little, and which later began to "drag." In the autumn of 1919 the right leg also began to show similar symptoms, and he then had to give up his work, although still able to walk about with the aid of a stick. In the month of January, 1920, he became rapidly weaker, and in the first days of February he was entirely confined to bed. From that time until I saw him in March he was in hospital and only growing feebler.

I have dwelt in detail upon this clinical history for reasons to which I shall return directly, but we may now turn to his condition as first seen.

He could not stand or walk unless supported. The right leg was very weak; the left could not be moved in the bed. When assisted he attempted to walk, but did so with an extremely spastic gait, more marked on the left side. There was no marked atrophy of the limbs, but the left was thinner than the right. As regards anaesthesia, he presented fairly good appreciation and localization of contact throughout, although there was a little delay in response. The appreciation of heat and cold and the sense of pain were lost in both lower limbs, and thence upwards to a level of about 2 in. above the umbilicus. Knee-jerks were exaggerated on both sides, and he had marked ankle clonus, especially on the left; the plantar reaction was extensor; the lower abdominal skin reflexes and the cremasteric reflexes were very sluggish. Bladder and rectum showed no abnormality. Pain was of the girdle type, running round immediately above the umbilicus, although in the early stages it had been assigned to a higher level; it was sufficiently severe to require a nightly dose of opium.

So far, then, we have a sufficiently typical case of a transverse lesion of the spinal cord more advanced on the left side, but on a very slight consideration of the symptoms and onset, we can go much further and recognize with almost absolute certainty an intrathecal tumour which may readily and most hopefully be removed—a diagnosis founded on both negative and positive indications.

About traumatic lesions we need not trouble. I have seen several cases of haemorrhage into the lower dorsal region of the cord, generally occurring in boys or young men and often after bathing in cold water, but in such, as in trauma, the onset is acute. Tuberculous disease of the spine is excluded by the absence of any evidence of bone disease either clinical or radiographic, and by the very slow onset; in this connexion I may say that local tenderness on tapping the spinous processes, and even local kyphosis may be present in the case of intradural growths, and that such symptoms must not be taken as excluding the presence of such growths, but here this possible source of error had not arisen. For similar reasons it is not at all probable that we have a growth—generally malignant—of the vertebrae themselves; the pain is not the intense pain of "paraplegia dolorosa" met with in such cases, and, while vertebral growths are generally secondary, there is here no indication of any primary growth elsewhere. Syphilis is excluded, so far as exclusion is possible, by the total absence of any indication of that disease, and by the fact that the cerebro-spinal fluid gave a negative Wassermann reaction. Growths, tuberculous masses, and cysts within the cord itself are all comparatively rare, especially in the lower dorsal region, and are not as a rule accompanied by pain. Cysts, such as hydatid cysts, in the meninges would, of course, produce the same symptoms as true tumours, but their treatment is identical. Of a remaining possible source of error I shall speak in connexion with our second case.

So much may be said for the negative side of our diagnosis. On the positive side we have a very strong argument. The essential feature of the clinical history was, as we have seen, *pain* long precedent to the paraplegia, of varying intensity and associated with remissions, while it was not localized in the back, but extended vaguely along one or more spinal segments. Such pains are almost invariably present as an early symptom of intrathecal tumours; I have traced back their history to as long as two years before any paraplegic phenomena were noted, and I have known them to be in abeyance for many months. They may or may not be associated with paraesthesiae or with a certain amount of anaesthesia. They may be bilateral or, as in the early stages of

* Delivered to the Birmingham Branch, November 17th, 1921.

this case, unilateral. Of somewhat vague nature, they are not often in themselves diagnostic until other symptoms supervene. They are generally described and treated as "rheumatic," or they may be regarded as due to visceral disease, as in one case in which a most eminent surgeon had advised operation upon the gall bladder in a man from whom I removed an intraspinal growth. Themselves, therefore, almost useless as a guide, they are of the utmost value when other medullary symptoms have developed, and it follows as a matter of course that every case of such radiating pain demands a most careful and, if necessary, a repeated search for indications of a transverse lesion of the cord, which may, as in our patient, approach most insidiously, and which show a strong tendency to be at first unilateral only.

Our diagnosis in the present case being, in my opinion, a matter of almost absolute certainty, it remained only to localize the level of and to remove the growth. The localization of the level demands, first, an accurate examination to ascertain the highest level of sensory or motor phenomena; secondly, a knowledge of the distribution of the spinal segments; thirdly, a recognition of the relation of these segments to the spinous processes; and fourthly, a correct enumeration of the processes themselves. It is doubtless due to a want of appreciation of these anatomical difficulties that many errors have occurred, and that the tumour has been missed through its having been sought too low down.

With regard to the appreciation of the highest level of symptoms it is not sufficient to accept the upper limit of what I may call "gross anaesthesia." The line of limitation is often very ill defined and only careful and repeated examination will enable us to determine it. In the present case a casual examination might readily have limited the level to a point below the umbilicus, whereas greater care showed some sensory loss as high as two inches above that landmark; pain had, indeed, been felt at a still higher level, but the overlap of segments causes pain to radiate far beyond the obvious anatomical distribution of the affected nerve and hence the ninth dorsal segment was regarded as the true level of the lesion. The peripheral distribution of the various spinal segments is now well recognized, and its consideration at this date would be merely a historical discussion into which I do not propose to enter, more especially as, with my old teacher James Ross, I may perhaps claim to have laid the basis upon which it rests. Moreover, in the case of the trunk, it is a peculiarly simple problem and the great majority of intrathecal tumours lie below the brachial and above the lumbar enlargement.

The relation of the affected segment to the spinous processes which are our guide to the site of operation is variable within somewhat wide limits, so that the operation must be sufficiently extensive to allow for individual differences. In the region with which we are now dealing the segment is generally about two vertebrae higher than the spinous process which bears the same number, so that for our ninth dorsal segment the centre of the incision will be at or even a little above the seventh dorsal spine, which again corresponds to the body of the eighth dorsal vertebra. Again, the determination on the operating table of the spine desired as a landmark is often far more difficult than might be supposed, especially in a stout or deformed person, and it may be necessary to find it beforehand by means of a radiogram with an indicator fixed to the skin, or even, as in one of my cases, by previously imbedding a piece of wire at the region required and then checking it by a radiogram.

In the case which we are now considering the operation, with the details of which I do not propose to trouble you, was performed on March 23rd, 1920, or, say, twenty months ago. The laminae of the seventh, eighth, and ninth dorsal vertebrae were cut across with the saw, the ligaments between the sixth and seventh divided with scissors, and the flap thus made turned downwards. There was at once observed an obvious fullness of the dura mater, which was laid open. The spinal cord was found to be pushed backwards and to the right, and a tumour was exposed to the left of and in front of it. One of the spinal roots, presumed to be the ninth dorsal, lay across its lower pole, and was divided to allow of the cord being gently drawn still further to the right, when there was fully exposed a firm, deeply red, encapsuled mass, which proved to be 3 cm. long, 1.5 cm. wide at its lower end, and very much of the size and shape of the terminal phalanx of the index finger. This was most readily shelled out, its attachments being, as is usual, quite loose. The actual seat of origin of the growth could not be determined owing to the very lightness of these attachments, which almost give the impression that the tumour is lying free in the meningeal space; moreover, very little bleeding follows the blunt separation of the connecting bands. In structure the tumour was described by the pathological department as a "fibroma of rather cellular and vascular type."

Such an operation may be regarded as typical, except that it is more difficult in stout patients to turn down spines, laminae, and their connexions as a continuous osteoplastic flap. On the other hand, in this case the anterior position of the growth and its rather unusually large size rendered necessary a good deal of traction on the already markedly displaced cord. I must, however, again insist on the readiness with which these growths can be enucleated, those which are situated a little further back upon the cord almost giving the impression that, if the patient were rolled over, they would fall out as—to use a war-time illustration—a shrapnel bullet might fall out of a mass of granulation tissue.

The rather unusual difficulty in shelling out the tumour in the present case explains the fact that for a short period the patient had aggravated symptoms. For the first four days anaesthesia was a little deeper than before operation, but sensation to heat and cold then began to return and was rapidly followed by return of sensation to pain. Urine was retained and the catheter was required for the first eight days after operation, while he had a mild attack of cystitis, which quickly passed away. Return of motor power was more gradual but perfectly steady. On the twenty-eighth day both legs were quite movable in bed, the right being more so, but both still felt stiff; the right knee-jerk presented no exaggeration, the left slight only; the plantar response on both sides was an extension followed by flexion. At the end of six weeks he could walk about the ward with a stick and was able to go home. A month later the aid of the stick was dispensed with. Examination of his condition to-day will show that from a subjective point of view he is perfectly healthy and that the only peculiarities which can be detected are a faint linear scar upon the back and a slight irritability of the knee-jerks.

It remains to consider, as in all cases of tumour removal, what are the prospects as regards recurrence. Into the difficult question of the pathological nature of these intrathecal growths I do not propose to enter. Probably all arise from dura, arachnoid, or pia mater. Among my own cases I have had various descriptions from pathologists, such as haemangioma, lymphangioma, endothelioma, and fibroma, occasionally also sarcoma; far more extensive investigations have been made from *post-mortem* examinations, and many operators have recorded psammomata, which, curiously enough, I have not met with, or at least not recognized; hydatid cysts are not by any means unknown, but again I have not seen such. The important practical point is that I know of no case of recurrence even in patients operated upon many years ago. I have met with one case only of infiltrating sarcoma, which invaded the conus medullaris and the cauda equina for many inches, and in which excision was out of the question; I have met with one case of long standing in which functional recovery after excision was very imperfect; I have had one case in which, on clinical grounds, I advised operation, but the misreading of a radiogram (now many years ago) was taken to show a large ossifying sarcoma—nothing was done, and the patient died, when the autopsy revealed a condition quite similar to that of H. H. On the other hand, I have had at least a score of cases in which the operation was as simple and the results as satisfactory as in the one before you. The operation mortality is *nil*, as I have found it to be in all cases of laminectomy for exploration, rhizotomy, spinal drainage, and the like. But I regret to say that I know of a good many cases in which operation has been refused and death ensued. It is my earnest hope, gentlemen, that such cases will become more rare than they now are, and that in all which are doubtful the safe and simple expedient of exploration will be adopted.

And now I will ask you to turn to my second patient, whose case illustrates some difficulties of diagnosis and some of the advantages of exploring when in doubt.

R. C., aged 22, consulted me on December 6th, 1920. From boyhood he appears to have suffered from vesical catarrh for which I have found no cause or explanation and from which he had no practical inconvenience. In the year 1917 he had an attack of fever of unknown nature while on naval service in Cuba; other-

wise he has been perfectly healthy. Nine weeks before I saw him he had a disagreeable sensation which he describes "as if his toes were tied together." His legs then became weak and stiff and he was unable properly to control their movements. He had a little pain on bending strongly to the left and appeared to have some tenderness of the left kidney, but these symptoms were so slight as to be quite doubtful. Incompletely paraplegic, he had great and increasing difficulty in moving about the room with the aid of a stick. Anaesthesia, which was nowhere complete, extended to a fading margin a short distance above Poupart's ligament. Knee-jerks and ankle clonus were markedly exaggerated. There was some difficulty in commencing to micturate but no retention of urine.

A week later when he came into hospital paraplegia was almost complete; he could neither stand nor walk. Anaesthesia was more marked and extended nearly to the waist line. The knee-jerks and the ankle clonus were more marked on the left side; the plantar reactions were flexor. Three weeks in hospital were devoted to the attempt to define symptoms a little more closely, to look for any sign of improvement from complete rest, and to search for any of the more common causes of transverse lesion of the cord. We found no evidence of tubercle or other bone disease. There was no indication of syphilis, and the Wassermann reaction of the cerebro-spinal fluid was negative. There was equally no evidence of past or present gonorrhoea; the urine contained small quantities of pus, but no organisms were discovered. Anaesthesia varied a good deal in its intensity and slightly in its upper limit, but sensation was normal above the line of the umbilicus. Paraplegia increased, so that he could not move his lower limbs in the bed.

Here, then, we have a clinical picture which I may describe as the blurred image of an intrathecal tumour. Anaesthesia could not be recorded in diagrams as it was vague and changeful but with a tendency to extend upwards. Paraplegia was steadily increasing in intensity. The reflexes were those of a transverse lesion except for the plantar reaction. There was no longer any pain, and pain had always been of the slightest. Such a condition reminds us at once of the cases described by Horsley as "chronic spinal meningitis" and by Spiller as "circumscribed serous spinal meningitis." The general outline as given by Horsley resembles that of a tumour of the cord, but pain is less definitely localized and there are often widely spread hyperaesthetic areas; anaesthesia is incomplete and without dissociation; paralysis comes on as a widely spread weakness, often unilateral; there are no vasomotor symptoms; the patients are almost always adults, and the upper level of anaesthesia is usually mid-dorsal. Some of Horsley's cases were regarded as syphilitic, several as due to recent gonorrhoea, and others were assigned to influenza.

Operating on 21 cases of this type which had been originally regarded as tumours Horsley found excess of cerebro-spinal fluid, thickening of the arachnoid, "matting of nerve roots," and compression of the cord. He opened the dura mater, irrigated with strong solutions of mercuric chloride, and left the theca open for drainage. The good results which he obtained he compares to those which follow laparotomy in tuberculous peritonitis.[1]

When this description appeared I had already met with a few similar cases—notably one in which I thought that the symptoms of a tumour of the cauda equina were unequivocal, but in which I found only thickening of the dura mater with very large quantities of cerebro-spinal fluid; after this had been opened up and drained recovery was to my surprise complete, but I fear that I then dismissed the matter from my mind as an unexplained error in diagnosis.

The case of R. C. appeared to me to be most probably of similar nature, and the source of infection as vesical or renal, and I decided upon an exploratory operation, which was performed on December 28th, 1920. The sixth, seventh, eighth, and ninth dorsal laminae were totally removed, it being difficult to do an osteoplastic operation on account of the rather free haemorrhage and depth of the wound rendering unsafe the use of the saw. In the centre of the exposed area of the theca it was at once obvious that there was some change; above this point pulsation was very marked; below it ceased entirely and abruptly; there was also an appearance of a slight constriction. An incision four inches long was then made into the dura from below upwards, and cerebro-spinal fluid only began to flow when the incision was carried above the point noted; above this point the flow was very free, from which I concluded that there was here some slight adhesion of the meninges, although there was no visible cicatrix. As the patient's condition was giving a good deal of anxiety to the anaesthetist, while free bleeding and escape of cerebro-spinal fluid obscured the view, I decided to complete the exploration a few days later. Four days afterwards, when the wound was reopened, there gushed out from its deeper part at least two or three ounces of cerebro-spinal fluid, but nothing further was discovered after a most careful search, including the anterior aspect of the cord, and the wound was again closed, the dura mater being left freely open.

For four or five days after this second operation there was a good deal of pain; at the end of a week the lower limbs could be moved, and at the end of a fortnight were freely movable, while sensation was distinct everywhere, although still somewhat wanting in acuteness. On account of the amount of injury inflicted upon the bones of the spine I kept the patient in bed longer than usual, but after two months he could walk, although with difficulty. He can, as you will see, now go about quite easily, and he says that the only thing that he cannot do is to run; he is, as he will tell you, not conscious of any physical defect, although his knee-jerks are still exaggerated, and probably always will be so. His old vesical condition is naturally not affected by the operation, and I am hoping that it may now be found possible to do something to correct it.

I have brought this case before you more particularly to illustrate three points—namely, first, the great importance of exploring doubtful cases of transverse lesion of the cord—that is to say, *all* cases which are not obviously hopeless; secondly, that you are more likely to do good than harm should a diagnosis of a thecal tumour prove incorrect; and thirdly, because I hold that there is a strong probability that many early cases of transverse myelitis may be arrested and cured by incision and drainage of the dura mater—a possibility fully in accord with the view that such myelitis is often due to infection spreading along the spinal nerves and then necessarily crossing the meninges and the intradural space before the cord itself is attacked. If this view of the causation of transverse myelitis be correct—and there is strong evidence in its favour—we may then hope to arrest the infection in its course and to save the cord before it is irretrievably damaged. When once a portion of the cord has been converted into a cicatrix there is nothing to be done, but if we can arrest infection at its onset it is reasonable to hope that the patient may be saved. In all other regions of the body we aim at the drainage of infections at the earliest possible moment; in this, the most vulnerable of all regions, we can only hope to save by exceptionally early drainage of even the mildest of infections. And, before leaving this side-issue of the present address, I may add that I think the infections usually derive from the urinary organs—a view in accord with the cases which I have myself seen, with the tendency of transverse myelitis to attack the levels connected with the kidney, and with the fully recognized tendency of the kidney itself to collect and harbour organisms of all types.

Gentlemen, I have, with the exception of a single reference to the great pioneer of the surgery of the nervous system, given you only the results of personal experience, and I am only too well aware that as surgeon to a general hospital I have not the advantage of those practising in hospitals specially devoted to the diseases of the nervous system. For this reason I cannot bring before you extensive statistics, nor can I hope to do more than help to throw a very little light upon neurological questions. But the more obscure and limited field of to-day becomes the commonplace of to-morrow, and I am convinced that the search for and the recognition of cases such as I have described to you will result in the discovery and the salvation of many which are now lost. The neurologist and the surgeon are fully prepared to deal with them, although the neurological physician perhaps hardly realizes the safety of laminectomy. It is therefore now necessary only to make such cases more widely known to the great body of the profession in order that we may realize an advance in treatment similar to that which has occurred in other branches of practice.

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, February 27th, 1909.

THE International Grenfell Association now has five hospitals established on the shores of Newfoundland and Western Labrador; an orphanage was built at St. Anthony, on the north coast of Newfoundland, last summer.

THE Federation of the American Society of Experimental Biology, composed of five societies, held its annual meeting at New Haven, U.S.A., from December 28th to 30th, under the auspices of Yale University. Dr. J. J. R. McLeod, of the University of Toronto, president of the American Physiological Society, was president. The annual meeting of the American Association of Anatomists was held at the same time.

THE VALUE OF FREEDOM AND EXERCISE AFTER OPERATIONS.

BY

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THE object of this paper is to suggest that the need of rest after operations has been greatly exaggerated, with the result that patients are kept in bed much longer than is really necessary. Traditions and long-established habits are generally followed blindly and without question, whereas it is our bounden duty, in the interests of progress, to submit them to criticism, to continue what is good, to cast aside what is useless, irksome, and harmful, and to evolve better and more humane methods. For some ten or more years I have been asking myself the following questions:

Is it necessary or kind to insist on so much rest? Is it not dangerous, as well as irksome to the patient? Is it economical—in the widest sense of that word—to keep patients in bed and in hospital for such a long time? Do not unnecessary restrictions add to the personal fear, as well as to the danger of operations? Is it true that wounds heal faster and better when at complete rest, or that they may give way when patients are allowed up early for gentle exercise?

As a result I have gradually changed, and I hope and believe greatly improved, the after-treatment of my patients. I submit that many of the dangers of operations are due to unnecessary restrictions imposed during this time, and that the public fear of operations is very largely due to the same cause. My patients often tell me that, if they had known beforehand how simple and comfortable the after-treatment could be made, they would not have hesitated so long before undergoing operation. For this reason it is kind and wise to describe and explain the plan of after-treatment before the operation, so that the patient may expect and welcome the method. It cheers him to know that he may move as much as he likes in bed from the first, have the freedom of the room after four days, of the bath after seven days, and may take short walks or drives in the open air after ten days.

It is true that rest in bed is valuable while the nervous system is exhausted and the body is in pain immediately after a severe operation, but when reaction has set in and pain and tenderness have subsided, as they generally do after a few days, it is no longer necessary. Nay, the normal mind and body chafe under undue restrictions and want to return to more natural conditions and habits as soon as possible. Complete rest in bed depresses the spirits and lowers the physiological actions and general vigour of the body. The heart beats less frequently and less forcibly, the breathing becomes slower and shallower, the appetite fails, the digestion flags and the bowels become sluggish. Under these conditions the risk of clotting of the blood in the auricular appendages and in the veins is increased, and it is a matter of experience that thrombosis and pulmonary embolism are far more likely to occur in bedridden patients. The best way to avoid these serious complications is to keep the patient and the blood stirring. Clots large enough to obstruct the pulmonary artery take some time to form, and it is known that such clots rarely cause fatal embolism within the first week of an operation. The catastrophe nearly always takes place between the eighth and seventeenth day. It appears to be easier to avoid the formation of clots than to prevent their shifting, and I therefore keep my patients moving as much as possible from the beginning, getting them to walk a little within four or five days of the operation, unless there is some grave contraindication. As a result I very rarely see thrombosis or pulmonary embolism now.

It is, again, well known that the dangers of hypostatic pneumonia and other pulmonary complications are greatly increased by the incomplete aeration and congestion of the bases of the lungs which prevail in bedridden patients. The muscles, especially those of the legs and abdomen, begin to waste and lose their tone after a few days in bed, and this deterioration progresses so rapidly that standing and walking become more and more difficult. By getting up early and walking a little every day this loss of power is prevented and the need of massage abolished.

Undue adhesions of the viscera to each other and to the parietes, and of the various layers of the abdominal wall to each other, can be very largely prevented by early voluntary movements. For instance, many patients kept too still in the sitting up and flexed positions, find it difficult and painful to straighten their bodies and hips on getting up, whereas if they are encouraged to move freely and get up early they are spared these troublesome complications, for any adhesions that form are sufficiently stretched while they are still soft and comparatively painless. It is far easier and better to prevent limitation of movements from adhesions than to correct these limitations once developed or confirmed by the prolonged adoption of unnatural positions during healing. Man is punished by his limitations, not by his movements.

Constipation is usual, if not invariable, when patients are kept in bed too long after operation, whereas it can be minimized, if not entirely avoided, by letting the patient get up early, take gentle exercise, and adopt the natural position for defaecation. Constipation, besides being very unpleasant and troublesome to the patient and nurses, brings many evils in its train, such as loss of appetite, excessive straining and the purgative habit, which is difficult to abandon afterwards. It is probable that it also increases the risk of infection of the blood stream and thrombosis. Excessive straining is to be avoided, for it is certainly a severer test on an abdominal or hernial wound than gentle walking exercise.

As regards the healing of wounds, years of observation have convinced me that complete rest is unnecessary and even harmful by interfering with general and local circulation and nutrition. I have no recollection of any delay of healing due to getting up early and taking gentle exercise, nor have I ever seen hernia develop or recur from this cause. Fractures of the ribs always join promptly and well in spite of the inevitable movement of the fragments. Similarly, gentle movements of wounded soft parts do not hinder but help the process of healing. Confinement to bed, or even to a room or indoors, almost inevitably deprives patients of some of the great benefits of fresh air, light, and sunshine, which have a most stimulating effect upon healing of body and mind, as was well shown during the great war.

It is not economical to keep patients so long at rest in hospital. Let us take appendicectomy and the radical cure of hernia as examples. Patients are generally kept in hospital for about three weeks after these operations, whereas, even under present conditions, they can safely leave after ten days, or even earlier. Under ideal conditions—as, for instance, the existence of a simple and economical convalescent home or camp in the country—they could be moved there after four or five days, for these patients need very little nursing or medical attention after that time. In this way two or three times as many patients could derive benefit from the charity, or, as an alternative, the number of hospital beds in London could be greatly diminished. Very soon the long and costly delay in getting into hospital would be abolished.

Much thought, trial, and observation have convinced me that the ideal after-treatment cunningly combines rest with exercise and freedom—at first much rest and little exercise, later less rest and more exercise every day. The sooner the normal habits of life are restored the better. I have learnt much from children and infants, who are difficult to keep still, and yet heal and recover better than adults.

I do not claim that the views I venture to express are original, but (what is far more important) I believe them to be true, and that a reasoned account of them is long overdue. That there is need of it is evident to anyone who cares to look around and think. A few brief examples which have recently come my way may help to show this.

A short time ago I saw a surgeon of ability and repute fix a child in a long Liston splint after the radical operation for hernia—surely an unnecessary punishment. A lady, after an operation for acute appendicitis, with pelvic peritonitis, was, in spite of instructions, kept in the Fowler position, with a pillow under the knees, for a month, with the result that she could not stand or walk in the upright position for three months, and even then required massage for her withered legs. Again, an elderly gentleman, having had his gall bladder removed in New Zealand in April, came to see me in October because he leaned forward and to the right, and could not stand or walk about without pain in his right flank, due to adhesions and retractions of his abdominal muscles. He had been kept at rest, in the sitting-up and flexed position, and had been asked to keep as still as possible in order to ensure healing. Compare this result with that of a patient who, after choledochotomy and cholecystectomy, went home on the twelfth day and voluntarily walked up three flights of stairs to his bedroom in London. Two days later he motored thirty miles to his cottage in the country, and three weeks later, after a perfect

holiday, returned to his professional work in London in excellent health.

It is not suggested, however, that patients should be hurried back to work, or that all should be treated alike, for some need a longer holiday than others, and after some operations a long convalescence is essential. For instance, some overworked or exhausted patients, even after comparatively trivial operations, require a long convalescence to restore them to health; but the rest and change from work is all the more effective when it is combined with gentle, interesting, and increasing exercise, with mental diversion. Similarly, after gastro-jejunostomy, especially for an active duodenal ulcer, prolonged convalescence and dieting for from two to three months are necessary to ensure permanent healing of the ulcer and stoma, but only the first few days of this period need be spent in bed. The greater part can be passed more profitably in the open air, taking gradually increasing exercise, just short of fatigue, so that the patient becomes strong and well before he returns to work, about three months after the operation.

THE TREATMENT OF TUBERCULOSIS WITH COLLOID OF CALCIUM.

BY

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IT is generally admitted that the present methods of treating pulmonary and also so-called surgical tuberculosis leave much to be desired. The methods suggested have been numerous, but a great deal of controversy is always in progress as to their respective merits. The dispute over tuberculin is perhaps the most familiar example of divergence of view. I am of opinion that the conflicting views on the value or otherwise of tuberculin arise from the two-edged nature of this substance, which although undoubtedly beneficial in some cases is harmful in many others; the difficulty of differentiating these cases without actual experiment makes many very chary of using the remedy.

With regard to new remedies there is always the difficulty of deciding whether any given improvement or other change is due to our treatment or is the result of the vagaries of the disease. Many new methods of treatment have apparently yielded good results in the hands of those who first used them, but have after a time been abandoned; this makes it appear possible that some of the results were psychic in origin, and it is therefore with some diffidence that I bring a new remedy to the notice of the profession.

In the BRITISH MEDICAL JOURNAL of March 19th, 1921, page 420, I published some remarks on the treatment of tuberculosis by means of calcium. There was considerable variability in the results obtained by the administration of calcium lactate—the particular salt I used—and it occurred to me that this might be due to differences of absorptive capacity in different individuals. I therefore cast about for some other method of administering the drug. I had at that time, for a rheumatic condition, been using with success some collosol iodine prepared at the Crookes Laboratories. I therefore asked whether I could obtain calcium in the colloid state, and was informed that at the suggestion of Sir Malcolm Morris—who I may say has taken a great interest in this investigation—they had just prepared some colloid calcium and sent me a supply to try.

Mr. J. F. Ward, the chief chemist at the Crookes Laboratories, who has rendered me every assistance in this investigation, tells me that the calcium is protected by glutaminic acid, which is prepared from gelatine; this is autoclaved to 140° C., which guarantees freedom from living organisms and spores. The strength is 1 in 2,000, representing the actual amount of calcium present, the amount of calcium oleate being approximately seventeen times as much. The colloid calcium, when examined with the ultra-microscope, is seen to be in active movement. The fluid is homogeneous, has the appearance of milk, and easily passes through a very fine hypodermic needle.

The drug is administered hypodermically. I inject it under the skin of the back of the forearm, as that situation is easily accessible, and the local reaction can more easily be observed. The skin is rendered aseptic, and the injection is made with a Record hypodermic syringe graduated in tenths of a cubic centimetre. I use a very fine steel needle which renders the injection little painful—a matter of some importance. Veins should be carefully avoided. I have used an initial dose of 0.5 c.cm., the average dose used having been 0.7 c.cm., and I have not given larger doses than 1 c.cm.

The actual dose of calcium is extremely small, and I would warn any who are inclined to use this remedy not to increase the dose without due consideration; those indicated appear to have been quite sufficient. For instance, in a very acute case with very high temperature and night sweats I gave 1 c.cm., and the sweating ceased for ten days, but the temperature remained rather higher, and no benefit apparently followed. I have not yet quite decided as to the correct spacing of the doses; as a rule I have given them every five days to begin with, but I am not sure that a week is not a more satisfactory interval, and in some cases an interval even longer is perhaps better. This point must be decided by the general clinical condition of the patient.

There is generally some local reaction at the site of the injection visible the next day. This is a very variable factor, in some cases it is almost negligible, in a few severe; in one case which was suffering from tuberculous glands with discharging sinuses, the first reactions were very pronounced, and the second caused swelling of the whole of the forearm from the wrist to the elbow; nothing was done in the way of treatment; she continued her work as usual, and the swelling and redness disappeared in three days; as she was feeling so much better and the sinuses had ceased to discharge, she cheerfully went on with the treatment. I have not yet been able to satisfy myself whether there is any connexion between the amount of reaction and the amount of benefit or otherwise which follows, but it is quite possible that this can be worked out with more experience.

Most of the patients make no complaints after the injections, but certain symptoms follow in others. Vomiting occasionally occurs the day after an injection, and in some few cases palpitation has been complained of; in one case there was a complaint of giddiness; this, however, soon passed off, and no treatment was necessary except that it is perhaps advisable to decrease the dose and lengthen the intervals. One beneficial result of the injections is that in many cases the patient sleeps very much better. I generally give the injections in the evening, so that patients will not be taking exercise until the next morning. Where a patient is suffering from fever it is well to be cautious, as it sometimes happens that the injections are followed by a rise of temperature and the symptoms of a mild tuberculin reaction, including increase of sputum. The rise in temperature has never been much in my cases. I have given over 800 injections, many of them to young children of 5 or 6, and I have never experienced any anxiety—a very different experience from that one has when giving tuberculin.

All the 56 cases upon which this account is based, with the exception of one which was a domiciliary case, were living under sanatorium conditions—favourable conditions to improvement; the temperature in all cases was taken in the rectum, and I believe unless this is done it is impossible to gauge properly the effect of treatment. I would urge those who try this remedy not to omit keeping their patients in bed if they are suffering from fever.

I commenced treating cases with colloid calcium at the beginning of July, 1921; for obvious reasons I have to confine my report to immediate results which could be most easily observed. Of 56 patients treated 24 were males and 32 females. Owing to the less stable metabolism of calcium among females than males, we might expect that administration of calcium would be more beneficial in their case; nevertheless a considerable number of males benefited. It should be remembered that the actual amount of calcium given was extremely small.

Of the 56 cases treated 24 were males and 32 females. Of the 24 males 10 had tubercle bacilli in the sputum, and of these 3 lost them during treatment. Of the females 9 showed tubercle bacilli and 2 lost them.

Among the males, haemoptysis ceased in 4 cases, the temperature became normal in 1, the sputum dried up in 2 and became much less in 4 others; in 1 case breathlessness was markedly lessened, and in another with limitation of night sweats there occurred marked improvement in acne. One case suffering from Pott's disease showed much less spinal irritability. One case was doing so well that it was impossible to ascribe any of the improvement to the calcium. In 2 cases the general improvement in energy and appetite

was very marked, and in the remaining 7 no change was observed.

Of the females, in 1 case persistent epistaxis ceased; in 3 cases night sweats ceased and the temperature fell to normal; in 2 cases the night sweats ceased but the temperature did not fall; in 1 case night sweats ceased but the temperature rose slightly, but on continuing the treatment the temperature again became normal. In 2 cases the sweating was reduced but did not cease. In 2 the temperature was reduced to normal with improvement. In 1 the sputum was reduced to nothing with great improvement, and in 1 the sputum was reduced. In 1 breathlessness became much less. In 2 sputum containing tubercle bacilli appeared for the first time. In a spinal case irritability became less; 10 cases improved markedly in feeling of general well-being, and in 5 no change was observed.

The more immediate effects of treatment can be gathered from a perusal of the above, but I may say in passing that some of these cases have improved in a phenomenal manner, the majority being cases of long standing. The case having persistent epistaxis had suffered from it on and off since 1914, and just before the treatment was begun she was having attacks of epistaxis several times a day; after seven injections this completely stopped, and she had had none for six weeks; in addition she is not now short of breath, is feeling very fit and well, and is working hard as a ward maid. She was formerly an inmate of the Ayrshire Sanatorium. It seems difficult in this case to confuse cause and effect. One of the patients in which the haemoptysis ceased, had been having small haemorrhages for weeks; he has now been free for two months and tubercle bacilli have disappeared. One of those in whom the sputum dried up had had it for years; in addition her temperature has fallen to normal and she is able to do her work with comfort. One of those in whom the breathlessness was very much relieved has been under my care almost continuously for eight years; about four years ago I produced a partial pneumothorax in this case, without any improvement, and she then became quiescent under Spengler's I.K. therapy, but she was always troubled with shortness of breath when she gained weight. Since she has had the calcium she has gained over half a stone in weight and is less short of breath.

One of the cases in which the night sweats ceased and the temperature fell was very remarkable: she had been in bed in this sanatorium for seventeen weeks, with a continuous high remittent temperature; she had been ill for a long time, and was what is called a "third stager," with tubercle bacilli in the sputum; she had been treated by rest during all this time, and also with calcium lactate, but although an excellent patient she was no better. She was one of the first cases on which I tried this treatment: at the end of six weeks her temperature was normal, the night sweats ceased almost at once, and by the time she went out tubercle bacilli had disappeared, and she was very much improved.

In two cases something like a reaction occurred, as after the first injections sputum appeared for the first time containing tubercle bacilli. One was a patient who had been under my almost continuous care for six years; she had never had a normal temperature during that period, and was very breathless, largely owing to the extent of the disease reacting adversely on the heart. She has continued the treatment because she feels so much less tired after the injections, but is at present very ill. The other was a girl also with extensive disease, and I was much puzzled why she had no sputum; in this case the treatment was continued and the sputum is much diminished, and she is feeling very well. These two cases may serve as a warning that colloid calcium has in some cases a direct action on the lesion.

Colloid calcium would seem to be beneficial in surgical tuberculosis, for in one of the cases tuberculous glands rapidly diminished and sinuses dried up. In two cases of caries of the spine, in one of which paraplegia had been present for some months but had disappeared before I started the treatment, the remaining spinal irritability, as shown by increased knee-jerks and pronounced ankle clonus, became very much less, the latter being quite unobtainable on some days. In the other the knee-jerks became much less exaggerated and the temperature tended to fall.

The action of the calcium can, perhaps, to some extent be explained by a consideration of its effects. We believe that in a considerable number of cases it stops sweating; sweating lowers the temperature and therefore in those cases in which the sweats cease and the temperature falls there must be some other action at work, which, however, might be explained similarly; the benefit may be due to the less permeability of the toxins shielding the remainder of the body tissues from poison derived from the lesion; the drug might by this action restore patients saturated with toxin to such a condition that they might ultimately be able to use toxin to form antibodies. I am inclined to think that a certain number of so-called chronic cases which exhibit a normal or subnormal temperature may really only have lost their sensitiveness and are being continuously poisoned by toxin, but are unable to react by a rise of temperature; many of these cases are doubtless thought to be doing well in sanatoriums, but their subsequent history differentiates them from cases in which a normal temperature indicates cure of the disease. Probably such cases will benefit by the administration of calcium. The two patients mentioned who lost their breathlessness may both come under this category, the breathlessness being due to toxaemia.

I think that colloid calcium may have a wider application in medicine than the treatment of tuberculosis; it may prove useful in rickets where there is a deficiency of calcium salts and where there is a great tendency to sweat. It is significant in this connexion that cod-liver oil is very useful in both these diseases. I would suggest that if colloid calcium be tried on quite young children a small dose of 0.1 c.cm. be first given, to be increased until the optimum dose is found. It is probable that adenoids would also be benefited, and the same caution would apply here.

In conclusion, I wish to express my thanks to Sir Malcolm Morris for the interest he has taken and the encouragement he has given me during this investigation, and to Mr. J. F. Ward, chief chemist to the Crookes Laboratories, for preparing the drug and for much valuable information concerning its properties.

POST-OPERATIVE HAEMORRHAGE.

BY

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In connexion with an extremely interesting communication made by Messrs. Pringle and Stewart and Professor Teacher in a recent number of the *Journal of Pathology and Bacteriology*,* the case hereafter recorded may be of some importance, for it seems to be analogous to the cases of post-operative haematemesis which they have described. I have now had a large experience of ophthalmic operations, but as far as I recollect I have never had a similar incident. Fortunately the patient concerned did not succumb to the condition. He made an excellent recovery, and therefore an accurate diagnosis of the source of the haemorrhage is impossible; only inferences can be made.

I performed the operation of cataract extraction one afternoon about 2 o'clock on a gentleman well over 70 years of age, being assisted thereat by my friend Dr. McMillan. The patient had been in a nursing home for a considerable time before the operation, for, at his first admission, inoculation of serum agar tubes with the conjunctival fluid gave a fairly active growth of *Staphylococcus albus*. I therefore had resort to the saline douche, which was applied every few hours for some days till the culture gave only two small colonies. When this condition of comparative sterility had been obtained I determined to operate. There was thus ample opportunity of observing his general condition prior to the operation. To all appearances he enjoyed excellent health; he took a full but plain diet, and in every way had a relish for food and never complained of the slightest pain. For years he had been in the habit of taking a mild aperient as occasion required, and this he continued to do while in the nursing home. The urine was found to be free from albumin and sugar. He was for his years possessed of a most unusual degree of vigour, both mental and physical. The only incident in his previous medical history which seems worthy of record is the fact that when a young man he was considerably troubled with epistaxis.

The operation of extraction gave no trouble; the lens came out quite easily, and an iridectomy was made; although the eye was highly myopic there was no escape of vitreous whatsoever. Altogether the conditions seemed very favourable. I visited the patient the same night about 10 o'clock, and found him as comfortable as could be expected. Following

* An account of this paper was given in the BRITISH MEDICAL JOURNAL, December 24th, 1921, p. 1088.

my invariable custom, I gave him liberty to lie in whatever position he found to be most comfortable. He made no complaint, and seemed to be doing quite well. The following morning I was summoned urgently to see him. On my arrival in his room I ascertained that about two in the morning he had suddenly been seized with very acute pain in the neighbourhood of the stomach; this had lasted for some considerable time, and had been followed by severe vomiting. The matters vomited had been retained, and I found on inspection both of the contents of the vessel and of the bedclothes, which had been stained by some of the vomited matter, that there had been severe haematemesis. The coloration of the vomited matter was dark brown, but in the vessel I found also some fresh blood. I immediately availed myself of the services of a physician, who gave him a prescription, chiefly consisting of bismuth, and gave directions as to the feeding. When I saw him in the morning after the vomiting I found him considerably collapsed, and complaining of great weakness. Evidently he had suffered very severely from pain. Fortunately there was no recurrence of the haemorrhage, and ultimately, as already intimated, he made an excellent recovery. In view of the communication already referred to, the possibility of the case having been one of oesophageal post-operative digestion cannot be overlooked. Such severe symptoms after cataract extraction was an entirely new occurrence in my experience.

ANTIMONY IN LEPROSY.

BY

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IN view of the reported benefit derived from the antimony treatment of some Indian lepers at Durban in 1920,[1] Dr. F. G. Cawston asked me to give antimony a trial on a more extensive scale amongst natives at the Amatikulu Leper Institution in Zululand. No special treatment for the disease had been used there, reliance being placed on fresh air, good food, careful dressing of ulcers, cod-liver oil, and to a lesser extent chaulmoogra oil by the mouth.

I decided to test oscol stibium in the treatment of twenty of the worst cases, mostly cripples who were being housed in the central hospital while awaiting death. The majority of these cases received doses of the drug intramuscularly, 2.5 c.cm, 3 c.cm. and 6 c.cm. on consecutive days. Three weeks later 4.5 c cm. and 6 c.cm. were given on consecutive days. This series of two doses was repeated during the next two months, making a total of about 40 c.cm. injected.

Beneficial effects were seen in the relief of paralysis, drying of the ulcers, and in the general condition of all the patients treated except one, who has shown no change at all so far. Similar successful results were obtained from the use of Crookes's colloidal antimony, which proved more toxic and more effective; equally good results were obtained in a few cases treated with tartar emetic intravenously.

Over 1,000 injections have been given at the Amatikulu Institution during the last six months; there has been no serious local inflammation and no abscess. In each case the needles and syringes were sterilized before use by means of mercury biniodide in methylated spirit followed by pure methylated spirit, and the site of the injection was sterilized by mercury biniodide solution.

Though antagonistic to the treatment when first adopted, these leper patients have developed a great belief in its efficacy, and in most instances have themselves requested that it should be continued. In the case of Zulus this request is very significant—they do not like medicine injected.

At the present time (July) 98 female natives and 131 males are being treated with various preparations of antimony; 4 of these have recently been treated with ethyl esters after two series of injections with antimony, and their progress points to the efficiency of the combination.

Although still in its early stages, the results at the end of six months have been very encouraging, and suggest antimony in considerable doses for short periods, with intervals of three weeks between each series, as a great help in treating leprosy and possibly as a cure in some cases. It is also useful in combination with ethyl esters and sodium hydnocarpate.

[1] See BRITISH MEDICAL JOURNAL, July 17th, 1920; December 4th, 1920; March 19th, 1921.

The following cases illustrate the use of the drug, especially in very severe untreated cases.

CASE I.

Native male; on January 20th, 1920, he was not expected to live much longer. He was partially paralysed in both legs and had lost all the toes on one foot. There was marked paralysis of the face and eyelids, so that he could close his mouth only by means of his hand. Dry keratitis had supervened as a result of the facial paralysis, but was not advanced. He received 2.5 c.cm., 3 c.cm., and 6 c.cm. oscol stibium on three consecutive days. Three weeks later the paralysis of the legs had much improved, he had taken food better, put on weight, and felt more comfortable in every way. Since then he has received four more series of injections, 3.5 c.cm. and 6 c.cm. being given intramuscularly on consecutive days. To-day (July 20th) he can walk regularly to the dispensary, a distance of 200 yards or more, and is to be seen walking about the place continually. He can close his mouth without help and chew his food. His eye condition is much improved, but he cannot yet quite close the lids. The treatment is being continued.

CASE II.

This is also a case of maculo-anaesthetic leprosy, showing partial paralysis of the legs and face with conjunctivitis. He received the same treatment and no other during the last six months. The eye condition has entirely cleared up and the lids have returned to normal. Although there is still some weakness of the legs, he is now able to walk without difficulty and has considerably improved in general health. Both these cases showed lepra bacilli in scrapings taken from the nasal septum and were passed as lepers by several boards. Without treatment both would certainly have died before now.

CASE III.

This native female was very emaciated and feeble. She had also been placed in the hospital to die. There was no paralysis. The macular areas were raised over nearly the whole of the back about one-eighth inch above the normal skin; they were rough and one of them covered a square foot of the surface of the back. She received the treatment outlined above. After the first series of injections the most remarkable results became evident, the whole area desquamating and leaving patches of healthy skin with small ulcerated areas. A somewhat similar result was obtained by Dr. Cawston in the treatment of Naukaklia, as reported in the BRITISH MEDICAL JOURNAL on December 4th, 1920, pp. 855 and 856. The skin of this Amatikulu patient was anaesthetic throughout, but after the injections the affected areas began to itch and caused her to scratch herself. On July 19th the skin was almost normal, a trifle lined, with a slight mottling of colour only. She is now walking about easily, is eating well, and feels well.

CASE IV.

This native woman was also in a dying condition; she was a case of maculo-anaesthetic leprosy with enormous discharging ulcers extending from the knees to the feet. She was very thin and weak. She received the same doses. The ulcers cleared up very rapidly at first, and, although there are still a few small sores, the extensive ulceration has healed up much more rapidly than a burn over such a large area would have been expected to do. To-day (July 19th) she feels well and walks about easily all over the place. Throughout the injections the ulcers have been treated locally, as they were treated before the commencement of the antimony course.

CASE V.

On January 20th this native boy of 11 years was considered to be dying. He had enormous tubercles all over the face which might be described as confluent. On one of the feet there was a perforating ulcer 2 inches in diameter. He was given 2.5 c.cm. of colloidal antimony intramuscularly. This dose gave rise to a very severe reaction and for a week his condition was very grave. At the end of the week, however, he felt so much better that he requested me to continue the injections and 3.5 c.cm. were injected without ill effect; 6 c.cm. were given on the following day. All the tubercles shrunk immediately so that their summits looked feathery as a result of acute desquamation. This desquamation has occurred after the other series of injections. On July 19th the tubercles, though present, were much smaller and retracted. The boy is taking his food well and feels well. The ulcer on the foot healed rapidly and has not caused any further trouble.

CASE VI.

This native man showed macular areas all over his face and body, these leprous areas were depigmented and anaesthetic. He improved very rapidly after the first series of injections in February. The spots began to regain their pigment and the sensation of pain returned. The sweat glands returned to normal in the leprous areas, so that the skin regained its normal appearance and became shiny. To-day there is only a slight mottling of the skin to indicate previous disease.

At a later date it is hoped to give a more extensive report of the effect of antimony on a large series of cases, but at the end of six months' treatment one can say without fear of contradiction that antimony has a very decided value in the treatment of leper patients, more particularly those who are exhibiting severe manifestations of the disease. Dr. Andrew Balfour of the Wellcome Bureau saw these cases when visiting Natal, and they have been inspected by a considerable number of medical men from various parts of South Africa who are interested in the progress of the treatment.

THE ANTE-NATAL TREATMENT OF CONGENITAL SYPHILIS WITH SALVARSAN AND MERCURY.

BY

JOHN ADAMS, F.R.C.S.

IN his article in the JOURNAL of November 26th (in the course of which he refers appreciatively to my cases at the Thavies Inn Clinic) Dr. Leonard Findlay states, "That the curative treatment of congenital syphilis, if not a failure, is at least a great disappointment, no one who has had much experience will deny." As this statement is opposed to my experience, I should wish to point out some difficulties Dr. Findlay has had to contend with in treating his cases, and to express the opinion that, had other methods been used, very different results would probably have ensued.

I will begin with Dr. Findlay's last paragraph, in which he says that all his cases were out-patients. In such circumstances the treatment of congenital syphilis would certainly be unsatisfactory and disappointing, for a large number of syphilitic babies would have died before it was possible for them to be treated as out-patients.

I would strongly urge that the best time to treat all cases of syphilis, whether ante-natal, post-natal, or acquired, is the earliest possible moment available, and this applies especially to newly born babies. I have seen several cases which, had treatment been delayed for a few days, would certainly have died. Babies have been treated at the Thavies Inn Clinic within a few hours of birth, and one of the earliest under an hour, with good results and perfect safety.

Pain is mentioned as a drawback to the treatment of post-natal syphilis, but if galyl in glucose is used intramuscularly in appropriate doses according to the age and weight of the child, no discomfort follows its use, and all the advantages of salvarsan are obtained.

Dr. Findlay's reference to "limits of curative treatment" is somewhat confusing, for he states: "In any case the curative treatment has the great shortcoming that it only influences the disease in children born alive, and neglects altogether the ravages during intrauterine life." If this paragraph refers to post-natal syphilis, one knows how difficult such cases are to deal with if allowed to go untreated for a year or more.

Under the heading of technique it is stated: "Administration of salvarsan in infants and children by the intravenous method considerably limits its use." Intravenous injection for babies and young children appears quite unnecessary, and in many cases would be impossible; injection into the superior longitudinal sinus is open to still greater objection, as at all times there must be a certain amount of danger; but intramuscular injection of galyl in glucose in the gluteal region is perfectly safe, painless, and effective, and should be adhered to in all cases of newly born babies and young children.

In his remarks on the time of election of treatment Dr. Findlay asks the question, "Should the treatment be carried out as soon as the diagnosis is made, or should it be delayed until the woman is pregnant?" My practice is to treat the patient at the very earliest opportunity and continue for a prolonged period—two years if possible.

The method of breast feeding as advocated by Dr. Findlay has brought about the best results in the cases under my care, but it is frequently found necessary to supplement it by some form of artificial food, and all patients, whether babies or adults, should be given mercury as well as salvarsan.

The accompanying table shows the result of treatment of women during pregnancy and of the newly born children at the Thavies Inn Venereal Centre for Pregnant Women during the four years it has been open. I append also a tabular outline showing the method of treating babies adopted at the clinic.

Result of Treatment of Women during Pregnancy and of the newly born Children.

Years (September 1st to August 31st).	Mothers Admitted with Syphilis.	Babies Born Alive. Wassermann Reaction: Positive.	Negative.	Babies Dying of Syphilis.	Foetus Stillborn from Syphilis.
1917–1918 ...	23	17	6	Three at the ages of 3, 14, 35 days respectively	5
1918–1919 ...	30	8	21	One, 2 months	1
1919–1920 ...	37	1	36	None	0
1920–1921 ..	23	5	16	None	2*

* Neither of the mothers had treatment before admission and both were confined of macerated babies soon after.

Treatment of Babies.

	Wassermann test of Mother	Placenta	Baby
Treatment	+ ... + ... +	+ ... + ... +	+ * *
No treatment	—	—	—

	Intramuscular Galyl in glucose†	Intramuscular Hg‡	Oral Hg
1st day	1.25 cg.	—	—
8th ,, ...	1.5 cg.	1/6 gr.	1/2 gr. daily Hyd. § creta
22nd ,, ...	2 cg.	1/4 gr.	,,
36th ,, ...	2.5 cg.	1/4 gr.	,,
Wassermann test.			
50th ,, ...	2.5 cg.	1/3 gr.	,,
64th ,, ...	3 cg.	1/3 gr.	,,
78th ,, ...	3 cg.	1/3 gr.	,,
Wassermann test: Nearly all babies become negative before or at this period.			
120th day...	3.5 cg.	1/3 gr.	Intermediate treatment.
134th ,, ...	3.5 cg.	1/3 gr.	
148th ,, ...	3.5 cg.	1/3 gr.	
175th ,, Wassermann test.			

At the ninth and twelfth months courses of three injections of 4 to 5 cg. galyl and 1/2 grain mercury should be given, and gr. 1 hyd. § creta daily for a month. Further treatment is governed by the progress of the case. Should the Wassermann test become positive at any future date intensive treatment should be begun immediately. These doses are calculated for babies of normal weight for their age.

* Do not usually require the full course of treatment.

† To be obtained in 2.5 and 5 c.c. ampoules from the Anglo-French Drug Co., Ltd., 238a, Gray's Inn Road, London, W.C. 1.

‡ Mercurial cream for adults, 40 per cent.; for babies, 20 per cent. Can be obtained from Squire, 415, Oxford Street, W. A special syringe, which can be obtained from Montague, 69, New Bond Street, W., marked with fifteen divisions, each of which is one-fortieth of a cubic centimetre, is recommended. With 40 per cent. mercurial cream each division contains 1 cg. or gr. 1/6 of mercury.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF MENINGITIS SIMULATING TETANUS.

H. S., aged 47, came to the Casualty Department of the Radcliffe Infirmary, Oxford, on November 4th complaining of pain in the neck and abdomen and stiffness of the lower jaw. Six days previously he had fallen off his bicycle, cutting the inner aspect of the left thumb on a bucket he was carrying. The wound was carefully cleaned at the time and dressed on the succeeding days.

On admission there was some slight rigidity of the neck muscles and definite stiffness of the lower jaw, which he was unable to open more than about half an inch. A provisional diagnosis of tetanus was made and he was admitted, although in view of the fact that since the day of the injury he had repeatedly expressed his fear of contracting tetanus, it was thought the symptoms might eventually prove to be functional. On admission antitetanus serum was given as follows: Intrathecally 7,000 units, intravenously 10,000, and subcutaneously 10,000. The cerebro-spinal fluid removed was clear and not under increased pressure. The following day his condition was much the same; there was trismus and rigidity of the neck, but no opisthotonos, risus sardonicus or general muscular spasm, squint or photophobia were noted, but he complained of headache. The knee-jerks were brisk and the plantar reflex flexor; the bowels were constipated. There was retention of urine; on passing a catheter a urethral discharge was noted.

Later in the day he was seized with a sudden spasm of the glottis and became cyanosed and pulseless, but was revived by artificial respiration, etc. He was now unable to swallow either solids or liquids, as any attempt to feed by mouth tended to bring on another spasm of the glottis. The case was now diagnosed as one of cephalic tetanus.

In the course of the next day, forty-eight hours from the onset of symptoms, he had several similar spasms, and died during one of them, in spite of the hurried performance of tracheotomy. The temperature was subnormal throughout; the pulse varied between 60 and 80. There was never any general muscular rigidity, but the spasm of the jaw never relaxed.

The patient was seen by several medical men familiar with tetanus, and the general consensus of opinion was that the clinical picture, whilst not quite that of ordinary tetanus, most nearly resembled that of so-called cephalic tetanus.

At the necropsy the lungs and the right side of the heart were found deeply engorged; there was no tracheal or laryngeal obstruction. The convex surfaces of both cerebral hemispheres were

covered with a yellow purulent exudate. The base of the brain was normal in appearance. In a direct smear from its surface no organisms were seen. A culture unfortunately was not made.

Although direct evidence is lacking, it seems possible, in view of the chronic gleet, that the case may have been one of gonococcal meningitis.

I am indebted to Dr. Collier, under whese care in hospital the case was, for permission to publish these notes.

L. S. FRY, M.R.C.S., L.R.C.P.Lond,
Late House-Physician, Radcliffe Infirmary, Oxford.

OESOPHAGEAL POUCH.

S. L., aged 5, was admitted to the Glan Ely Tuberculosis Hospital of the Welsh National Memorial Association on October 22nd, 1921, as a suspected case of tuberculous peritonitis and cervical adenitis. The history was that the child had been quite well until eighteen months earlier, when she swallowed caustic soda accidentally. Since then she had been ailing and getting progressively thinner, vomiting more or less regularly every few days. The child was wasted and emaciated and weighed only 1 st. 10 lb. 10 oz.; although showing possibly some of the stigmata of tubercle there was no definite evidence of any active disease. The abdomen on physical examination did not show any marked pathological condition.

The child was put on a light diet, but it was found that she was able to take very little; she vomited very frequently and probably brought back the greater part of whatever was swallowed. The vomited matter was alkaline or faintly acid; a fluid diet was tried with no better result. The bowels acted fairly regularly; the motions were loose and pale. The vomiting took place without effort and independent of the time of taking food; after some days of observation the possibility of an oesophageal pouch was suggested by Dr. Clark, the senior assistant medical officer. A fortnight after admission a bismuth meal was given and the chest screened, when a dark image, in shape a somewhat oval pouch, was seen. An *x*-ray plate showed a distinct pouch of the oesophagus at the level of the third to the seventh dorsal vertebrae.

As the child was too weak and emaciated to stand any severe or prolonged operation a gastrostomy was suggested as a means of getting her into suitable condition for possible removal of the pouch. The parents, however, refused operative treatment and took her home.

ALEX. BROWNLEE,
Medical Superintendent.

LABOUR COMPLICATED BY MALIGNANT GROWTH.

AT 3.30 a.m. on July 22nd, 1920, I was asked by my partner to assist him at a midwifery case. Neither of us had been engaged for the confinement, but a certified midwife was in attendance and had sent for help in the approved form. The woman was 38 years of age, a multipara, and this was her fifth confinement. She was very pale and cachectic, with oedema of the lower extremities and vulva, her pulse small and rapid, the rate 160 per minute, and her respiration sighing.

She had had an extensive haemorrhage, and the vagina was filled with a huge cauliflower growth, which bled readily when touched; the foetor was indescribable. After the most gentle manipulation, I found that the greater part of the growth arose from the anterior lip of the cervix. She was anaesthetized with chloroform, and upon passing my whole hand into the vagina I found that the head was presenting but not yet engaged in the pelvic outlet. I also made out that the head was fairly movable. I attempted to pass the lower blade of Barnes's long forceps, but on account of the free haemorrhage I had to desist. The patient was now *in extremis*. Foetal movements had not been felt by the mother for the last forty-eight hours; the foetal heart could not be heard; the child was evidently dead. I therefore performed bipolar version and was able to grasp the left foot; the child was easily delivered, but for a little delay caused by the head. The placenta was expressed and appeared healthy; the uterus contracted well. I gave the patient a half-grain morphine suppository. Convalescence from the labour was rapid, but the malignant growth increased, and in the course of a month presented at the vulva. She was then admitted into a neighbouring infirmary and transferred to a Liverpool hospital, where an exploratory laparotomy was performed; the growth was inoperable. She died from secondary deposits in the liver and lungs in June, 1921, eleven months after her confinement.

Wrexham, North Wales. J. C. DAVIES, M.D.

Reports of Societies.

SEPTIC INFECTIONS OF THE BLADDER AND KIDNEY.

AT meetings of the Royal Medico-Chirurgical Society of Glasgow, held on December 2nd and 16th, 1921, a general discussion took place on "The diagnosis and treatment of septic (non-venereal) infections of the bladder and kidney."

The opener, Dr. JOSHUA FERGUSON, confined his remarks to the infections associated with the *Bacillus coli communis*. This organism, normally harmless and useful, acquired, after leaving its ordinary nidus, a noxious and often dangerous character. In this respect, he suggested that just as the passage of a culture through various special media or certain susceptible hosts exalted its virulence, so the result of implantation upon new tissues might develop the morbific properties of the *B. coli*. The detection merely of coliform bacilli in the urine did not in itself prove the existence of a morbid infection. Often a bacilluria might indicate no more than the elimination of micro-organisms from the body. The lesions of the urinary tract dependent upon infection by *coli* organisms were cystitis, pyelitis, pyelonephritis, and pyonephrosis, or two or more of these may exist in combination or in sequence. The age and sex incidence was of considerable importance in diagnosis, and they occurred with almost equal frequency among the comfortable and among the less favoured classes, suggesting that the well-to-do were relatively more susceptible. Dr. Ferguson described 6 cases of cystitis and pyelitis, more particularly with regard to etiology and treatment, and concluded by emphasizing certain considerations relating to the treatment. In infants especially, but also in others, the early recognition of premonitory symptoms was important, as was, from the point of view of prophylaxis, the development of sound and cleanly functional habits. Diet, modified so as to ensure free internal lavage of the urinary channels, was all-important. Alkalinization of the urine should be obtained at the earliest possible opportunity; where this failed urinary antiseptics of the formaldehyde type (the best seemed to be hexamethylene-tetramine salicylate) were often successful. Regular free action of the intestine was an indispensable part of treatment, and in the infections under consideration the regular use of suitable doses of magnesium sulphate and sodium sulphate had usually a specially beneficent effect. Vaccine therapy in Dr. Ferguson's hands had produced inconstant results.

Dr. LEONARD FINDLAY dealt first with the varied symptomatology, which was especially so in infancy. The clinical picture was, as a rule, that of anything but an infection of the urinary tract, and very many diseases were simulated. Rarely, if ever, was the condition in infancy admitted to hospital with the correct diagnosis. In part this was due to the fact that routine examination of the urine was not carried out in infants. Besides thorough chemical examination of the urine, a microscopic and bacteriological investigation also was essential. An occasional pus cell seemed to be a normal finding, and in febrile conditions shreds of mucin and leucocytes were frequently present. Culture of the sediment of almost any specimen, taken with all due precautions, showed an occasional colony of *B. coli communis* or some other organism. In pyuria pus was present, in most cases, in sufficient abundance to be recognizable without centrifugalization. In a few cases the pus appeared in the urine only some time after the onset of illness. In bacilluria or bacteriuria, again, the organisms could readily be seen in a fresh drop without centrifugalization, and in films were abundant and cultivated readily (without centrifugalization). Dr. Findlay insisted on the need for obtaining over several months a pus-free and organism-free urine, as far as the fresh drop was concerned, before claiming a cure. One much discussed point was the mode of entrance of the infecting organism. Much experimental work had been done, and the conclusion reached that the passage of the infecting agent up the urethra, if the urinary tract was healthy, was improbable, but this was not so in the presence of abnormality, such as congenital hydronephrosis. Free drainage was necessary to secure the excretion of organisms such as *B. coli*, which passes through the kidney, but where anything interfered with the emptying of the urinary system the organisms multiplied and produced infection. While many clinicians believed that infection per urethram was probable Dr. Findlay did not favour this view.

With regard to the seat of origin, while many believed

that the disease commenced as a pyelitis, this was not necessarily so, although it seemed to be so in tuberculosis of the urinary system. Clinical histories and cystoscopic findings were against this contention. Clinically two distinct and different pictures were seen. In infants the disease usually began with great suddenness, with fever and severe toxic symptoms. It was one of the rare conditions in infancy in which rigors occurred. The urine contained pus and organisms, and occasionally small amounts of blood. In older patients there was frequency and pain on micturition and passage of blood at the end of the act, or it might be of a highly blood stained urine. There was no fever. In Dr. Findlay's opinion the latter type was a primary cystitis unaccompanied by pyelitis, and the former a primary pyelitis. The mortality was high in the former and very low in the latter. Observations made by himself and Dr. Renton, using the cystoscope and ureteral catheter, substantiated the truth of the teaching that primary cystitis did occur.

In conclusion Dr. Findlay said that his sympathies were with the haematogenous school. Various factors influenced the effects of the excreted organisms on the urinary tract and precipitated the inflammation. The disease occurred most frequently in infancy and young childhood, and this might be associated with the frequency of intestinal catarrhs at these times. Such increased susceptibility was seen in the cases of meningococcus, gonococcus, and tubercle bacillus in their effects on the meninges, infant conjunctiva, and lymphatic system respectively in infants.

Professor CARL BROWNING said it was important to note that cases might be divided into two distinct groups—those with obvious mechanical obstruction where removal of the blockage was mainly responsible for cure, and those where there was no mechanical abnormality and operative measures did not possess the same radical importance. The condition might apparently be primary or it might be a complication in other diseases. In diagnosis the presence of organisms in considerable number in recently passed urine, gross contamination being excluded, could only mean infection in the urinary tract. It must be remembered that it was not possible to determine which portions of the urinary tract were involved by a microscopical examination of the epithelial cells in the urinary sediment. Regarding routes of infection, it appeared improbable that the renal pelvis frequently became infected from the bladder unless there was obstruction. Passage of organisms from the blood stream to the renal pelvis occurred freely, and this probably represented an important route of infection in pyelitis. Infection by the lymphatic route had also to be considered. The bacteria found were most frequently bacilli of the *coli* group, but staphylococci or streptococci might also be present. In cases of chronic pyelitis, microscopic examination had shown that the bacteria did not merely inhabit the surface, but were lodged in the depths of the tissues and were thus protected from any therapeutic agents which did not possess considerable penetrating power. In considering treatment, Professor Browning referred to surgical measures in chosen cases and the alkalinization of the urine, as recommended by Dr. John Thomson. He also spoke of treatment by vaccines, and while admitting that results were inconstant, thought that they deserved a trial. In regard to the use of urinary antiseptics he referred to hexamine, the flavines, and the recently introduced organic mercury compounds such as mercurochrome.

Sir KENNEDY DALZIEL, in opening the discussion on the second evening, referred to the part played by the surgeon in septic infection of the bladder and kidney. Cystitis was rarely a primary disease, and was due, as all inflammations were, to the access to the bladder wall of micro-organisms. As a rule the symptoms were frequency of micturition, pain and strangury, with, later, alterations in the excretions. In the absence of instrumentation or other traumatism, these symptoms would usually be found to have their origin in pyelitis rather than cystitis. Cases to the contrary did occur, but in practice the bulk of cases had their origin either in the kidney or in the prostatic urethra. All were familiar with cystitis caused by catheterization, even with carefully sterilized instruments, infection being carried from external parts, or even the terminal part of the urethra. It might also be caused by injury with a foreign body and other factors which injured the mucous membrane of the bladder. The condition of the urine itself might play an important part in the causation of cystitis. Retention of urine in stricture and prostatic disease and the presence of blood serum in the urine encouraged growth of organisms. In the absence of instrumentation, germs found entrance to the blood stream through septic conditions of the teeth, tonsils, and various cavities. Most were destroyed by the blood cells, but when devitalizing conditions arose the organisms were not so destroyed but were thrown out by the kidneys. For that reason surgical operations attended by shock and exhaustion were sometimes followed by urinary infection, without the passage of a catheter. Surgical wounds of the bladder might cause cystitis, and the greatest care and precautions were necessary to avoid the introduction of organisms during and after operation. The after-treatment of prostatic cases was drainage and lavage, and frequent dressing was of the greatest importance. Inflammation of the prostate caused cystitis by direct extension to the bladder and might also cause profuse urethral discharge. The micro-organisms causing cystitis might be any of the pyogenic organisms, but, apart from instrumental infection, it appeared that the commonest infection was that of *B. coli communis*. Additional symptoms in cystitis were pain in the perineum, especially if the prostate was involved, and, in acute cases, tenderness above the pubis. In more marked cases blood cells, epithelium, and leucocytes were found in the urine. The urine was acid unless ammoniacal decomposition had set in. The symptoms of pyelitis and prostatitis were very similar, but in the former the tenderness was found in the kidney region, along the ureter, near but below McBurney's point and above Poupart's ligament; while in prostatitis the pain was more marked in the perineum, and was referred along the urethra. Cystitis varied in degree from the merely congestive or catarrhal to the haemorrhagic, the ulcerative, and gangrenous, and so also the constitutional symptoms varied. The condition of the urine varied also with the severity of the attack. For the most part the temperature was but little raised in cystitis, while the opposite prevailed in prostatitis and pyelitis, and in these the constitutional disturbance was greater.

For treatment, the first indication was the removal of all predisposing causes—stone, tumour, etc.—and also all causes of obstruction to the outflow of urine must be removed. Citrate of potash and diluents should be used in the milder cases till the urine was alkaline; thereafter the exhibition of a urinary antiseptic, such as urotropine or hexamine, in conjunction with an acid tonic. In more severe cases lavage with saline or boric solution was helpful, and in ulcerative and sloughing conditions suprapubic drainage must be had recourse to. His experience of vaccines had not been altogether favourable.

In inflammation of the kidney the infection almost always took place through the blood stream, and the structure of the kidney assisted this when organisms were in excess or resistance lowered. True bacilluria might exist for a considerable time without inflammation of the bladder or kidney, causing few symptoms, and those of a vague kind only. Blood might be present in pyelitis, even forming clots. Bladder pain might be very intense and the pain referred along the urethra. The urine was acid and *B. coli* was present; if copious an opalescent appearance was given. There might be tenderness over one or both kidneys. Fever and frequency of micturition might be marked; the former was a constant and important symptom. Acute cases might simulate an "acute abdomen." For treatment, alkalies, plenty of fluid, warmth, rest in bed, freedom from worry, and nourishing light diet, were recommended. The use of collargol in lavage through a ureteral catheter, and the free incision of the kidney in acute cases, were also mentioned.

Dr. JOHN THOMSON (Edinburgh) confined his remarks to the diagnosis and treatment of acute uncomplicated infection by *B. coli* of the higher parts of the urinary tract as it occurred in children of 2 years old and under. It seemed certain that the colon bacillus causing the infection came from the patient's own bowel. For many reasons it was obvious that the mucous membrane of a normally healthy genito-urinary tract was not readily infected by the *B. coli*. There was reason to believe that in health colon bacilli passed out of the body by way of the urine without doing any harm during their rapid downward passage; for an infection of the tissues of the tract to occur, either (1) the resistance of the tissues had been lowered, or (2) there had been retardation of the flow of urine downward so that the bacilli had been abnormally long in contact with the mucous membrane, or (3) for some reason the organisms possessed increased virulence. In clinical work there was often a history of such weakening diseases as influenza, infantile scurvy, etc., or a local lesion such as prolapse, threadworms, or anal fissure. The most evident

cause of obstruction to flow occurred in cases of congenital hydronephrosis: but it was possible that temporary blocking might occur, which was difficult to demonstrate. A history of severe diarrhoea was very common indeed.

The organisms found entrance into the urinary tract in three ways: (1) By the blood stream, which they had entered through some wound or abrasion of the skin or mucous membrane. (2) Directly through the tissues, especially into the right kidney from an inflammatory lesion of the bowel which lay in close contact with it. The attack often set in during an attack of severe diarrhoea. (3) By an ascending infection passing up the urethra from without, probably only in female cases. The infection might be confined altogether or mainly to one portion of the tract, or it might spread. In most cases it was impossible to obtain light on the distribution of the lesion from any examination of the urine, but information might be obtained by a study of the nature and course of the symptoms. Where the disease was confined to the bladder this might be recognized by the presence of pus and colon bacilli without toxic symptoms, but commonly with very frequent micturition, with or without incontinence. There might be an offensive smell and sometimes haematuria. When the ureter, pelvis, or kidney became infected, acute general symptoms immediately arose with high fever, prostration, nervous irritability, and sometimes delirium. In young infants squinting was common. Where general symptoms were severe from the first there were also signs of acute intestinal disturbance. In girls, also, in about half the cases, the rise of temperature was accompanied by one or more rigors—a rare symptom in infancy. Sometimes there was faintness or even unconsciousness. During the acute stage the respiration was generally accelerated, as compared with the pulse, although the lungs were not affected. Local symptoms, if present, were generally slight, although sometimes distinct enlargement, with tenderness of one or both kidneys, could be made out, A fresh specimen of urine was generally acid and might show albumin. There were usually visible colon bacilli and six to eight pus cells in each high-power field of a drop taken from the middle (and not the sediment) of the specimen. These urinary characteristics, taken along with a characteristic high remittent type of fever which ceased on alkalinization of the urine, constituted the essential elements of a diagnosis of *B. coli* affection of the renal pelvis.

Implication of the kidneys was suggested when the child was much collapsed, and when there was a considerable amount of albumin or when many casts were present. The temperature might be high and irregular or it might be normal or subnormal towards the end. Failure of alkalinization to relieve the fever within forty-eight hours was usually a sign that the kidneys were badly affected. The age and sex incidence was mentioned with regard to frequency and severity of attack. For treatment, plentiful use of fluids by mouth or otherwise was necessary, and one of the following measures: (1) The use of serums or vaccines, (2) administration of antiseptics, and (3) alkalinization of the urine. The first two methods had proved disappointing in Dr. Thomson's hands, and the third method was that usually adopted by him. Potassium citrate, simply because it was the least unpalatable, was the alkaline drug he most frequently used. If diarrhoea was caused, sodium bicarbonate might be substituted. The effect of the alkaline treatment could be well seen on the temperature charts, and the other symptoms always improved when the temperature fell. Doses that were too small exerted no influence on the course of the disease. If the disease had spead to the kidneys to any serious extent this treatment had little if any effect. When there was a mixed infection harm might be done.

Dr. JOHN COWAN remarked that although infection of the urinary passages with *B. coli* was considered to be due to a blood infection, no allusion had been made to blood culture. Blood infection might occur in cases of intestinal infection; it was the rule in enteric fever, and it was common in dysentery. If the assumption was correct, and blood infection preceded infection of the urinary passages, one would expect to meet cases where the general symptoms predominated, and local symptoms were absent or minimal. Such cases had already been referred to in children, but they occurred also in adults. He described two cases in which general symptoms of cerebral type obtained associated with a gross infection of the urine. The urinary symptoms were minimal or absent, and in both improvement in the general symptoms was the result of treatment by alkalies, and coincided with improvement in the urinary symptoms. There was no particular difficulty in recognizing the condition if search was made for it.

Dr. MARION GILCHRIST referred to the methods of treatment she found most efficacious. These included free purgation, sufficient doses of a paraffin emulsion with salol, which coated the bowel and prevented absorption of poison, antiseptics according to the nature of the case, free flushing of the urinary system, and urinary sedatives. Dr. Gilchrist suggested that there was a wide field for investigation in the study of the part which the endocrine glands played in the defences of the kidneys and bladder.

Mr. J. MILL RENTON differentiated between chronic cases depending on obstruction in the urinary tract and those without obstruction. The former usually cleared up with removal of the obstruction. In the non-obstructive cases the symptoms, mainly pain and frequency, were usually referred to the bladder. Before classing these cases as cystitis a comprehensive examination should be made of the whole urinary tract. Infection of one or both kidneys, or infection of the prostate, might keep up a cystitis. Cystoscopic examination of the bladder should be made in all such cases. By ureteral catheterization a specimen of urine should be obtained and examined. Abscess of a kidney was thus detected, and suitable treatment would rapidly clear up the infection. Sometimes a *B. coli* infection masked a tuberculous kidney. The treatment of chronic pyelitis causing cystitis was still far from satisfactory. Bladder lavage and vaccines were unsatisfactory. Lavage or instillation of the renal pelvis got at the seat of the disease more directly than other treatment, but opinions regarding the results were conflicting.

Mr. ARCHIBALD YOUNG (whose remarks were communicated by Mr. SCOULER BUCHANAN) pointed out that the subject of discussion was not limited to infections with *B. coli*. This failure to recognize the other types of infection might account for the different opinions as to diagnosis and routes of infection and treatment. He believed that a very large proportion of cases were brought about by ascending infection. The late Dr. Lindsay Steven proved beyond dispute that septic infection might spread upward by the lymphatics and give rise to septic lesions in the kidneys. This method of spread might explain many of the supposed blood infections. Admitting that many infections of kidney tissue, etc., were blood infections, the greater number were probably due to ascending infection. A very large proportion of simple *B. coli* infections appearing in later life, and more especially in the female sex, seemed to be recurrences of definite attacks dating back to infancy, or the transformation into active disease processes of simple bacillurias present, it might be, all through life and producing little or no symptom. As to diagnosis, Mr. Young agreed that careful and repeated examination of the urine was necessary, but the clinician's view should not be overshadowed by the pathologist's. There must be, however, unceasing care in observation of the case from every point of view. Treatment must depend obviously on diagnosis and on the route of infection. Vaccine therapy was disappointing, but the alkalinization of the urine had proved an effective measure in his hands associated with free flushing of the renal filter. He believed fully in large doses of urinary antiseptics such as hexamine and salol. His success in using the former was due to the fact that he used it in large doses combined with an alkali, and never with acid sodium phosphate. He rarely employed washing out the bladder in cystitis. Similarly he did not consider catheterizing the ureters was good practice.

POST-OPERATIVE EMBOLISM AND INFARCTION.

A DISCUSSION took place in the Section of Surgery of the Royal Society of Medicine on January 4th, on "Post-operative embolism and infarction." The chair was taken by the President, Mr. RAYMOND JOHNSON.

Mr. J. P. LOCKHART-MUMMERY, in introducing the subject, said that with the diminution almost to vanishing point of sepsis and shock, post-operative embolism was probably the worst tragedy of surgical practice at the present time. In one hospital alone there had been 18 deaths in a recent year from this cause. Moreover, the fatal cases appeared to be increasing; the incidence in some hospitals had doubled as compared with a corresponding pre-war period. Cases of embolism might be divided into three categories: (1) those in which death occurred instantaneously; (2) those in which death occurred within a few minutes or hours following an acute and sudden crisis; (3) those in which the patients

developed signs of consolidation in part of the lung following a similar crisis, and recovered. With regard to the first class of cases, he believed such sudden deaths could only be accounted for by an embolism in the medulla of the brain; possibly a thrombus formed in one of the pulmonary veins, and a portion of loose clot was detached and found its way through the carotid. Deaths in the second class of cases he attributed to heart strain through limitation of the pulmonary circulation. The heart was strained against a very serious obstruction in the arterial field through the right ventricle. The indication was to relieve pressure by dilating the vessels as much as possible; for this purpose amyl nitrite was probably the most valuable drug. In embolism or infarction the first symptom was invariably pain, and the temperature did not go up until afterwards; in this respect it was different from pneumonia, where the pyrexia came first, and the dyspnoea was a comparatively late symptom. He believed that it was to thrombosis of the pulmonary veins that they must look for the source of the cerebral emboli which formed quite a large proportion of these cases. There was a very prevalent belief that embolism was due to sepsis, but this he could not entirely endorse; the majority of cases in which pulmonary embolism occurred were cases in which there was no evidence of sepsis at all. The exact morbid pathology was not clear, but he thought it evident that a degree of stasis in the veins or at least a sluggish circulation must be present before vascular clotting could take place. The fact that such embolisms did not occur after operations on children was further evidence in support of this view. But while a considerable degree of venous stasis was a necessary factor in post-operative thrombosis, it was not the only factor, otherwise mere recumbency or lack of movement, without any operation at all, might result in thrombosis. In his view, before intravascular clotting could occur, two factors must be present: (1) A certain amount of thrombokinase derived from the tissues of the body and liberated into the blood by the wound, and (2) venous stasis. Neither factor alone could produce thrombosis. The condition was not one which lent itself to treatment; the hope lay in means of prevention. Such steps as were possible must be taken to prevent venous stasis in the branches of the vena cava. The preliminary purgation of the patient should be abandoned entirely, or, if necessary at all, should be carried out five or six days before operation. Starvation before and after operation should be relegated to the pages of history. Care must be taken to avoid as far as possible any constrained position on the operation table, and after operation the patient should be encouraged to move or should be moved so that the larger muscle masses were brought into action.

Mr. VICTOR BONNEY believed that pulmonary embolism was the result of sepsis, but the word must be understood in a very wide sense, and the condition presented some peculiar and obscure features. In the greater number of gynaecological cases, and also in cases of ordinary labour, it occurred, if at all, between the tenth and twentieth day following operation or delivery, and this was the period in which other complications most frequently occurred. In nearly all cases in which pulmonary embolism eventuated, whether after a gynaecological operation or after labour, the progress of the patient up to that point had been satisfactory, and the gynaecologist or obstetrician in charge was inclined to feel aggrieved at the occurrence of the embolism. But, as a rule, if the temperature chart were examined it would show that these patients were not quite right; the temperature might perhaps have gone up to 99° F. every evening for a week, or there might have been what he called subnormal fever. Pulmonary embolism was of most common occurrence after operations on the uterus. Among 1,791 hysterectomies performed at the Chelsea Hospital for Women from 1905 to 1918 it occurred five times. The incidence was much smaller in operations on the ovaries and tubes. In hysterectomy both the ovarian and the uterine veins were interfered with; in other gynaecological operations the ovarian only, or perhaps neither of the trunk veins. The uterine veins were very irregular, often lying below or in front of the uterine artery. So far as he knew, there were no valves in that uterine system of veins. In a pregnant uterus the conditions were somewhat modified, because then the trunk system of veins was extended into the uterus itself, whereas in the non-pregnant uterus the trunk veins ceased on reaching the uterine wall. He thought it probable that there was some auto-infection of the veins, occurring between the tenth and twentieth day. Whatever the nature of this infection, whether by bacteria or toxins, the injury to the vein wall was very slight, and the resulting thrombus was very feebly attached, so that it was easily separated. He questioned Mr. Lockhart-Mummery's statement that these cases were increasing. At the Chelsea Hospital for Women, while there had been, as he had said, five fatal cases due to this cause out of 1,791 hysterectomies from 1905 to 1918, if an earlier period were taken, from 1895, out of 1,573 hysterectomies the deaths from this cause numbered eleven; if all operations on the abdomen performed at this hospital were taken, the incidence of pulmonary embolism in the earlier period was again about twice what it was in the later. He could not think of any difference in operative technique to explain this, although certainly the operations were now done more dexterously and expeditiously, and no doubt sepsis was much lessened and recovery more rapid.

Dr. ARTHUR LATHAM thought that the bulk of cases of pulmonary infarction were not correctly diagnosed even at the present day. They were diagnosed as pneumonia or pleurisy, or it was frankly stated that the case was not understood. In the majority of cases, unless death occurred at once, the patient did well. The only necessity with regard to treatment was complete quiet and the avoidance of meddlesome tactics. His experience was that most of the cases of pulmonary infarction occurred in people who were run down or were in a chronic debilitated condition. In treatment he made a practice of giving citric acid in considerable doses, and believed that it had some effect in diminishing the tendency to thrombosis. The acid itself should be given, not citrates, which were inert.

Sir CHARLES GORDON-WATSON said that in 1921, in his wards at St. Bartholomew's, he lost two patients from pulmonary embolism after operation, and he had three cases of pulmonary infarction which recovered. He had asked Dr. Spilsbury to look through the *post-mortem* records of two years, and it was found that in those two years, out of 1,013 consecutive necropsies, the deaths from pulmonary embolism numbered nine, and Dr. Spilsbury rather thought there was one other case which was not indexed, making this the cause of 1 per cent. of the deaths. In the gynaecological department of Johns Hopkins Hospital, among 21,000 operations there were 31 deaths attributed to pulmonary embolism. He believed that it was a great mistake to purge the patient beforehand. The loss of fluid in the blood by purging, the haemorrhage during operation, and the post-anaesthetic vomiting, were all factors which the surgeon could minimize. Among other contributory factors were a recumbent position and diminution of respiratory effort and muscular contraction, together with any factor which caused clot. In his wards a scheme of respiratory exercises was carried out by patients after abdominal operations, and massage was also given where possible. He could not help thinking that posture played some part in the trauma of the vessels. In the records of the Mayo clinic the frequency of cases of thrombosis was greatest, next after operations on the uterus, in gall bladder operations, and it was in these operations that the spine was screwed up in such a way that the inferior vena cava must be stretched to a very considerable extent. Cases of pulmonary infarction seemed to be on a different basis from cases of sudden pulmonary embolism. Most of the former did show an irregularity of temperature after operation, and did not run a normal course. Of the two cases which died in his wards last year, one was a gall bladder operation, and the thrombosis was found, not, as might have been expected, in the inferior vena cava or its branches in the pelvis, but in the superior vena cava right up in the innominates, involving the right innominate and to some extent the left. The other was a breast case, and no thrombosis was found at all.

Dr. J. BLOMFIELD, who was invited to speak as an anaesthetist, claimed that most of the so-called ether-pneumonias were simply pulmonary infarctions. He believed that the effect of any of the commonly used anaesthetics on the clotting power of the blood was negligible. With regard to post-anaesthetic vomiting as a contributory factor to clotting, he thought it might fairly be claimed that this vomiting had greatly decreased in modern practice. Patients were much better off in this respect than they were twenty years ago.

Mr. W. MCADAM ECCLES said that he had had three cases of pulmonary embolism in six weeks recently. Two of these cases were fractures, and the possibility was suggested to his mind that in many of these cases of embolism after operation the conditions were similar to those obtaining in a fracture—

namely, there was injury to the vessels and injury to the fatty tissue. It might be that clot causing pulmonary embolism in some way resulted from this combination. Both these cases were comminuted fractures opening up a good deal of medullary tissue, but there was no wound, and consequently sepsis was not to be expected. There was no rise of temperature in either case. The third was an operation case—a case of hernia in a very stout man, who was getting up a fortnight after operation when he suddenly died.

The PRESIDENT remarked that there appeared to be few, if any, cases of pulmonary embolism recorded in war surgery. Partly this might be explained by the good physical condition of the patients and partly by the fact that they were not burdened with over-preparation for operation. His own opinion was that these cases were not increasing; figures which suggested that they were on the increase might be the result simply of the more careful investigation and analysis of cases which now obtained.

Mr. LOCKHART-MUMMERY, in reply, said he felt no doubt that dyspnoea in pulmonary embolism was due to the tremendous strain thrown upon the right ventricle of the heart in trying to force the blood through the blocked pulmonary artery. He had made inquiries in various directions about these conditions in war casualties, and the universal opinion was that pulmonary embolism was exceedingly rare in war surgery, if it existed at all. The vigorous circulation of the men and the fact that they were not kept so still as the ordinary hospital case might go far to account for the immunity.

BRITISH ORTHOPAEDIC ASSOCIATION.

THE annual meeting of the British Orthopaedic Association was held at Liverpool on December 2nd and 3rd, 1921, under the presidency of Sir ROBERT JONES.

Late Results of Treatment of Congenital Dislocation of the Hip.

Mr. H. A. T. FAIRBANK, in opening this discussion, presented a survey of the late results in a personal series of 146 cases (175 hip-joints) examined at least five years after the attempted reduction of the dislocation. He divided his cases into three age groups—(*a*) under 3, (*b*) 3 years and over but under 6, and (*c*) 6 years and over. The results were tabulated in three categories—namely, cures (first class and second class), anterior repositions, and failures. In his experience cases seen before the end of the third year offered the chance of obtaining by manipulative reduction 70 per cent. of cures in unilateral cases and 50 per cent. in bilateral cases. In a small group of cases giving imperfect results from the manipulative method he advised an open operation, the object of which was the making of an upper lip for the acetabulum without opening the joint. He considered that open reduction of the dislocation was always unnecessary in the younger cases, but was justified in those cases of the middle age group in which manipulative reduction had failed. He believed that anterior repositions rarely gave functional results superior to those seen in untreated cases, but he considered that on this point further information was urgently needed. In general, Mr. Fairbank had found that the anatomical (as judged from radiograms) and the functional results showed a close parallelism. He dealt with some of the complications following reduction—for example, arthritis, pseudo-coxalgia, and ankylosis—and he instanced how the imperfect hip-joints of congenital dislocations were liable to secondary changes. In the routine manipulative treatment he emphasized the importance of maintaining the position of full abduction for a minimum period of six months. A considerable number of lantern slides illustrating the radiographic results were shown.

Mr. E. LAMING EVANS, in continuing the presentation of the subject, also based his conclusions on an investigation of a personal series of cases. He made a plea for the treatment of this condition at an early age, and in this was in accord with Mr. Fairbank. Mr. Laming Evans considered, however, that in the majority of cases the patients after anterior reposition had good function, and that the results were always to be preferred to those of untreated cases.

Sacralization of the Fifth Lumbar Vertebra.

Mr. C. THURSTAN HOLLAND, in a short paper, pointed out how little attention had been directed to sacralization of the fifth lumbar vertebra in this country, although in America and Continental surgical and radiological literature numerous papers were available. As a radiologist he had observed a number of examples of this anomaly, either in the routine examination of suspected renal conditions or where symptoms had been definitely localized to the lumbo-sacral region. He described one case in which removal of an abnormal transverse process of the fifth lumbar vertebra had produced relief of the chronic backache.

In the discussion following this paper the PRESIDENT and others gave instances in which the operative removal of such abnormal transverse processes had been followed by the relief of previous symptoms, but the consensus of opinion was that such operations were to be advised with extreme caution.

Endosteal Tumours.

Mr. HARRY PLATT read a short paper on a small series of endosteal tumours of the long bones which illustrated certain points: (1) The healing of a myeloma after curettage; (2) the occasional necessity for amputation for a myeloma; (3) the rapid visceral metastasis in true sarcomata following amputation; and (4) the simulation of a primary neoplasm by an apparently solitary endosteal tumour of the tibia, which proved to be of an epithelial type, and secondary to a probable malignant tumour of the kidney or adrenal.

Demonstration of Patients and Operations.

At the Royal Southern Hospital (Orthopaedic Service) on December 2nd Mr. T. R. W. ARMOUR showed a number of patients illustrating in particular some very successful results of bone grafting for flail joints. Following this a number of operations were performed.

On December 3rd Mr. R. C. ELMSLIE showed a series of lantern slides illustrating various types of fibro-cystic disease of bones and other cystic conditions. He pointed out the importance of establishing clinical groups, in dealing with such comparatively rare conditions falling into various pathological categories.

MIDLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

THE first ordinary meeting of the Midland Obstetrical and Gynaecological Society was held at Bristol University on December 6th, with the President, Professor EWEN MACLEAN, in the chair.

Professor WALKER HALL gave an account of his research on the part played by different dilute acids in septic infections, and showed how careful determinations of hydrogen ion concentration were of value in accelerating and retarding growth of micro-organisms, in the making of blood cultures, and in connexion with developments in some aspects of diphtheria and tuberculous infection.

Professor WALTER SWAYNE reported a case of fibromyoma of the uterus complicating pregnancy and necessitating hysterectomy, and showed microscopic sections of the uterine wall from a case of accidental haemorrhage, partially concealed, associated with toxaemia. The sections showed interstitial haemorrhages and degeneration.

The PRESIDENT showed a specimen from a case of hypernephroma of the right kidney presenting some features of interest; on abdominal examination the case had presented many of the physical properties of a right ovarian tumour, and the patient had shown no sign of any suprarenal virilism. Dr. MACLEAN also showed a specimen of a large fibromyoma of the cervix uteri removed by panhysterectomy, and commented on the operative difficulties.

Mr. CHRISTOPHER MARTIN and Mr. FURNEAUX JORDAN, speaking of this case, both favoured enucleation of the fibroid prior to removal of the uterus.

Dr. G. I. STRACHAN showed a case of iniencephaly, which presented the typical retroflexed head and large foramen magnum, but no spina bifida. The specimen also showed absence of the left cupola of the diaphragm and numerous other abnormalities. Dr. Strachan also showed a specimen of thoracophagous twins united in the sternal and abdominal regions, and showing a large umbilical hernia, with single cord, in the line of fusion. The left twin showed absence of the left fibula and gross deformities of the left hand.

Dr. R. T. CARR showed specimens from the *post-mortem* examination of a case of acute haemorrhagic suprarenalitis occurring in a woman eight months pregnant. She had presented all the symptoms of acute intestinal obstruction, but on operating no mechanical obstruction was found. The right suprarenal body was very much enlarged and haemorrhagic, and the left similarly affected but to a less degree.

Reviews.

ATHLETIC TRAINING.

How to Become an Efficient Athlete,[1] by Dr. JOHN B. MCDOUGALL, is a book which should be studied by every young man who may aspire to do well at any athletic game or sport; if read and thoroughly digested by many of those persons who call themselves "trainers" it will do much to make their work more effectual and beneficial to those under their care. In an excellent introductory chapter Dr. McDougall points out the haphazard methods of training adopted, not only by the novice who attempts to prepare himself, but also by those whose vocation it is to supervise the work of "valuable" professional football players. He gives excellent advice, has a timely tilt at the bogey of "athlete's heart," and points out that which should be the real aim and object of scientific training and preparation, and what true "fitness" should mean.

The physiology of the heart, lungs, and muscles in their relation to training is shortly and clearly dealt with in language to be "understanded of the people." It is made quite clear that men in training are individuals, and that the methods of the bed of Procrustes cannot in any way succeed. Some men are "gluttons for work," and require it; for others a much milder régime will suffice, and any over-pressing will quickly result in staleness. There is a chapter on the skin and its most important functions during hard physical exercise, with directions as to the proper use of baths and massage, and a much-needed warning against "dilly-dally" on the training ground. Accidents and injuries, with their causes, are discussed, and in the chapter on diet the vexed question of the use of alcohol and tobacco during training is fully argued. The book concludes by setting forth the necessity for a broad view on athletics generally; this section should be carefully studied by parents, guardians, and schoolmasters generally. In the next edition a few words might be introduced on the special work required to get fit for cycle racing, for this sport differs from football and running (so ably dealt with in this work) in that the weight of the body is carried on wheels, and not on the feet. An extra word of warning to old athletes who may attempt to compete or play a strenuous game without very adequate preparation after cessation from active participation for some time would by no means be out of place. One other observation may be hazarded: it is that the ordinary club-playing amateur can hardly obtain the ideal preparation necessary for first-class and professional excellence, and perhaps does not need it. In the seventies of the last century a run across Hyde Park to early morning lecture was sufficient to ensure fitness enough to last through two strenuous "forty-fives" in international Rugby matches.

SURGERY OF THE UPPER ABDOMEN.

IT is well to make a virtue of necessity. One of the most satisfactory surgical textbooks published of late years, *Surgery of the Upper Abdomen*,[2] by DEAVER and ASHHURST, had the added attraction of convenient size, dignified page, admirable type, and everything that goes to the making of a real "book." And now—although

> "Surgeon nobs despise all jobs,
> Utility that verge on"—

here are the authors of a second edition writing a whole page of preface to prove that one volume without bibliographies, with summarized and condensed tables, and smaller margins, is better than two delightful volumes. Of course they are right, especially when, with all their sacrifices, the present edition costs £3 10s. The book is so well known and so constantly in use by surgeons that it is unnecessary to do more than mention some of the additions and revisions.

The section on gastric ulcer has been rewritten, with a new description of the stomach and its physiological "areas"; a new discussion of gastric analysis, and incidentally a new figure of sites of perforation of gastric ulcers, which is an extraordinary divergence from the analogous picture in the old edition. It certainly accords more nearly with average surgical experience. The junior author, it seems, reading between the lines, has had charge of this edition, but he preserves the same cautious non-committal attitude where he has not good personal grounds for a preference. On the question of "excision" of ulcers by the transgastric or other routes he has an open mind, whilst against "occlusion of the pylorus" he is almost decided, and for "partial gastrectomy" he certainly has a hankering, in preference to all tinkering methods.

For infantile stenosis Rammstedt's operation—simple incision down to the mucosa—is his choice. The discussion of jejunal and gastro-jejunal ulcers after gastro-enterostomy is interesting and charitable, though he still thinks an unabsorbable suture in the mucosa a sin. The sections on operative surgery of the gall bladder and spleen have similarly been revised, and there is a new section on operative removal of the descending duodenum.

The book, in its compact singleness of volume, remains a storehouse of practical information—a veritable surgeon's guide, philosopher, and friend.

INFLUENZA.

IN his *Studies in Influenza*,[3] Dr. BARTY KING first gives an account of an outbreak of 71 cases among 150 patients with malaria coming from Salonica and admitted to the County of London (Horton) War Hospital, Epsom, in September, 1918. Eight of the 71 patients died, and of these 7 had acute bronchopneumonia and 1 acute lobar pneumonia. It was noted that while quinine rapidly cured non-influenzal bronchitis in malaria patients, the continuous administration of quinine in cases of influenza in malarial subjects with acute pneumonia as a complication with no active malaria was harmful. Isolation, absolute rest in bed, and the early administration of strophanthus in large doses, were found the best lines of treatment in such cases. The author's second study deals with the after-effects of the acute pulmonary complications of influenza; here the use of the *x* rays in diagnosis is particularly recommended.

The third study gives an account of the incidence of influenza among the nurses and maids on the hospital staff during the influenza epidemic of 1918–1919. Among the 329 nurses 84 caught influenza and 2 died; both these nurses contracted the infection while nursing a severe case of influenza with acute bronchopneumonia, while a third nurse after five days' contact with the same case contracted a severe type of influenza that nearly proved fatal, the resident aural surgeon, treating the patient at the beginning of his illness, died of acute septic pharyngitis and septicaemia, and the chaplain, who was in contact with the patient throughout, contracted influenza with bronchopneumonia and died. It appeared that all the nurses developing severe forms of influenza had been working in wards containing severe cases of influenza, but that the incidence of influenza among the nurses was the same whether they had been in contact with mild or with severe cases. Dr. Barty King's book contains a great deal of valuable information on the symptoms and epidemiology of influenza; it will be read with particular interest at the present time when the disease appears to be on the move again in London and other great towns.

QUALITATIVE CHEMICAL ANALYSIS.

THE chemist who is much occupied with intricate analysis needs a reference book of wider range and more extensive detail than the textbook from which he learnt his first principles. Among the books which fulfilled this need with an older generation of analysts were those of C. Remigius Fresenius on qualitative and quantitative analysis. TH. WILHELM FRESENIUS has produced a seventeenth edition of the original work by the first Fresenius, and a translation of it by C. AINSWORTH MITCHELL, with the title, *Introduction to Qualitative Chemical Analysis*,[4] has been issued.

The opening chapters deal with fundamental conceptions of chemistry; then follow descriptions of the various operative methods potentially serviceable to analytical aims; next are

[1] *How to Become an Efficient Athlete.* By John B. McDougall, M.D. Glasg., M.R.C.P. Edin., F.R.F.P.S Glasg. London: Henry Kimpton 1922. (Cr. 8vo, pp. 58; 20 figures. 2s. 6d. net.)

[2] *Surgery of the Upper Abdomen.* By J. B. Deaver, M.D., Sc.D., LL.D., F.A.C.S., and A. P. C. Ashhurst, A.B., M.D., F.A.C.S. Second edition. Philadelphia: P. Blakiston's Son and Co.; London: H. K. Lewis and Co., Ltd. 1921. (Roy. 8vo, pp. 849; 198 figures, 9 plates. £3 10s. net.)

[3] *Studies in Influenza and its Pulmonary Complications.* By D. Barty King. O.B.E., M.A., M.D. Edin., M.R.C.P. Lond. and Edin. 1921. London: J. and A. Churchill. 1921. (Roy. 8vo., pp. vi + 88; 31 figs. 7s. 6d. net.)

[4] *Introduction to Qualitative Chemical Analysis.* By Th. W. Fresenius. Seventeenth edition of the original work by C. Remigius Fresenius, translated by C. Ainsworth Mitchell, M.A. Oxon., F.I.C. London: J. and A. Churchill. 1921. (Demy 8vo. pp. 961: 57 figures. 36s. net.)

described the properties and reactions of elements, cations and anions; and finally are given schemes for the detection and recognition of the same elements and ions in complex mixtures. There are special chapters treating of the analysis of mineral waters and soils, and detailing processes designed for toxicological investigation; an appendix treats of vegetable alkaloids and toxic principles.

The sequence of arrangement and the style of presentation are substantially the same as in former editions, but descriptive terms are altered to agree with modern conceptions of chemistry; the new matter consists chiefly of accounts of useful reactions which were unknown when the last edition was issued. Chemists who are familiar with former editions will be well satisfied with the continuation in the new volume of the former scheme of presentation, which fulfils their needs very well. The descriptions of principles and methods relating to analytical reactions are complete and instructive, and the schemes detailed for separation of the constituents of mixtures are excellent examples of chemical procedure. The volume contains all the information that analysts may be expected to need regarding inorganic materials and the organic substances of ordinary occurrence.

The articles treating of mineral waters, soils, and toxicological investigations hardly differ from those of former editions. Such a process as that given for the elimination of arsenic from body tissues, which is one of most elaborate procedure, would rarely be adopted in the present day, but its inclusion seems nevertheless to be proper to the character of the book as an example of exact method. The part which deals with the isolation and identification of alkaloids is educational in the fullest degree. The solubility tables given have a certain measure of usefulness, and the coloured spectra of elements from the older volume is reproduced in he new.

Unstinted praise cannot be given to the translation. Signs are numerous that care was lacking in the choice of English expressions. The phrase (page 58), "the absolutely dry mixture of the substance and the explosive agent . . . ," is less pleasing than the corresponding expression in the former English translation, which reads (page 15), "the perfectly dry mixture of the substance with the deflagrating agent. . . ." Deflagration is explained and described as "explosive fusion" (page 58); in some cases the text retains the guise of the original German, as in the sentence (page 279), "when the ammonia was added in excess these precipitates consist of . . ." On page 230 "ductible" is used for ductile, and on page 15, "The identification of these substances to be investigated by analytical analysis may be effected . . ." It may be judged from these instances that some of the paragraphs treating of general chemical principles and fundamental conceptions of chemistry are lacking in the lucidity which is so important to younger students. Nevertheless, the quality of the book as a trustworthy guide in all those problems in which the analyst may have occasion to employ unusual methods is well maintained. Very few typographical errors have been noted, but the index might with advantage have been much more extensive.

PHOTOGRAPHY.

THE *British Journal Photographic Almanac* for 1922,[5] edited by GEORGE E. BROWN, contains, in a condensed form, such a vast amount of information on everything photographic that it is almost indispensable as a reference book to any photographer, amateur or professional. The trade advertisements alone take up some 450 pages, and practically everything used in photography is referred to; a feature of this part of the volume is the illustrations. The main portion of the text deals with photographic societies and various photographic bodies; there is an article on "self-instruction" by the editor; and following this is an epitome of progress. Events of the year, apparatus and equipment, negative and printing processes, and colour photography, form the subject matter of various chapters; there is also a large amount of miscellaneous information on formulae, and chemical, exposure, and optical tables are provided. One of the most interesting chapters is that on the process of desensitizing exposed plates so as to allow of their development in white light, or in a very much brighter non-actinic light than could otherwise be used. A full account of this work, which is a notable new departure in photographic practice, is given, and the researches of Dr. Lüppo-Cramer, explaining the principles of the process, are related. The exposed plate is soaked in a red dye solution before development, and it is interesting to note that this dye does not merely act as a screen, but has in addition a direct desensitizing effect. The method should be of great practical use in the development of panchromatic plates. Valuable and complete indices complete the book.

[5] *The British Journal Photographic Almanac and Photographer's Daily Companion, 1922.* Edited by George E. Brown, F.I.C. London: Henry Greenwood and Co., Ltd. (Cr. 8vo, pp. 818; illustrated. Paper cover, 2s.; cloth, 3s. net.)

NOTES ON BOOKS.

THE exhaustion of two editions of Dr. J. S. FAIRBAIRN'S *Textbook for Midwives*,[6] and the appearance of a third in the space of seven years, indicates that it has found an appreciative public. By this we are not surprised, for the book bears throughout the stamp of the careful and practical teacher. In the present edition the only changes of note are in the section dealing with the infant, which has been rewritten and brought quite up to date. We have no doubt that this edition will soon be followed by successors. It is a book that we can unhesitatingly recommend to all nurses studying for the examination of the Central Midwives Board.

The second edition of Professor RICHARDSON'S book on *The Emission of Electricity from Hot Bodies*[7] deals with the abstruse and scientific aspects of a subject that has practical applications in wireless telegraphy, telephony, the production of x rays, and the rectification of alternating electric currents. These topics the author does not pretend to deal with; his chapters are occupied with the emission of electrons and of ions from hot bodies, and its effects. The book is one for students of physics; it gives a clear account of the subject, and is written without undue emphasis on its mathematics.

In his pamphlet on the sequelae of dysentery[8] Professor STRAUSS of Berlin points out that these sequelae—namely, diarrhoea with or without melaena, fever and dyspepsia, and recurrent abdominal pain or colic—are in general very obstinate. Vaccine therapy, drugs, enemata, and treatment applied through the endoscope all give disappointing results; those obtained by surgical interference (appendicostomy, caecostomy) are, as he shows by quotations from the literature, not much better. His final conclusion is that prevention is better than cure, which is as much as to say that it is impossible to treat cases of dysentery with too great care and thoroughness at the outset.

A popular book on *Vitamines*,[9] by B. HARROW, Ph.D., affords the general reader an opportunity of becoming acquainted with a subject of great importance to every man, woman and child in the civilized world. Vitamins, or accessory food factors, are essential constituents of any diet that is not to impair the health; how it came to be found that they are necessary to life is explained by the author of this book in simple language and full detail. The first half of the volume is taken up with a popular account of foods and diets generally, stress being laid on the quantities of the different classes of foods required by human beings, and on their energy content. The second half is devoted to vitamins. Dr. Harrow goes fully into their connexion with growth, and with the diseases beri-beri, rickets, scurvy, and pellagra. At the end of his volume he gives a number of references to the literature of the subject. Dr. Harrow writes incisively, and has produced a very lucid account of a difficult but highly important subject.

The late Dr. GEORGE HERSCHELL'S *Cookery for Dyspeptics*[10] is an excellent, brief, and thoroughly practical volume for the friends and cooks of dyspeptic patients to use, because, as the author points out, it is they rather than the medical attendant who will in fact settle what the patient eats. Beginning with recipes for the preparation of liquid foods, the author gives directions for soups, purées, semi-solid and solid foods in succession. No lists of foods for different ailments and no diet tables are given. Dyspepsia, both declared and unrecognized, is so common nowadays that this serviceable little manual should prove widely useful.

[6] *A Textbook for Midwives.* By John S. Fairbairn, M.A., B.M., B.Ch.Oxon., F.R.C.P.Lond., F.R.C.S.Eng. Third edition. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1921. (Roy. 8vo, pp. xiii + 365; 113 figures, 3 plates. 25s. net.)

[7] *The Emission of Electricity from Hot Bodies.* By O. W. Richardson, F.R.S. Second edition. Monographs on Physics. London and New York: Longmans, Green, and Co. 1921. (Med. 8vo, pp. 320; 34 figures. 16s. net.)

[8] *Nachkrankheiten der Ruhr.* Von Professor Dr. H. Strauss. Halle a. S.: C. Marhold. 1921. (Medium 8vo, pp. 61; 6 figures. M.7.)

[9] *Vitamines: Essential Food Factors.* By B. Harrow, Ph.D. London: G. Routledge and Sons, Ltd. 1921. (Cr 8vo, pp. 229; 8 charts. 10s. 6d. net.)

[10] *Cookery for Dyspeptics.* By the late Dr. G. Herschell. London: E. Arnold. 1920. (Demy 8vo, pp. 56. 2s. 6d. net.)

The Rights of the Ex-Service Man and Woman[11] is primarily a handbook for the use of those in need of information for practical purposes. As such it may be recommended; it is comprehensive in scope, accurate in detail, and adequately indexed. Mr. SHERREN has, however, adopted the historical form, and in doing so has given his work a more general interest, as it affords a concise review of the genesis and evolution of a sense of social responsibility unique in history, and its practical issue in the development of an extraordinarily complete system of administrative machinery. The preface, by Mr. C. A. McCurdy, M.P., serves to focus attention on the main features of that development.

The eighth edition of Professor JOSEPH'S textbook of venereal diseases[12] gives a good account of current German practice in the symptomatology, diagnosis, and treatment of syphilis, soft sore and gonorrhoea. It is a practical work, not too long, but rather badly illustrated. If anyone in this country thinks of ordering it he should ascertain beforehand what he will be asked to pay.

Erratum.—We regret that, through a clerical error, it was stated in a footnote to our review of Emerson's *Clinical Diagnosis* last week (p. 18), that the publishers of this work are William Heinemann (Medical Books), Ltd., whereas the publishers in fact are J. B. Lippincott Company, Philadelphia and London.

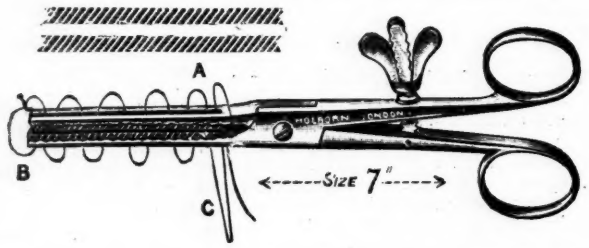
[11] *The Rights of the Ex-Service Man and Woman.* By W. Sherren. With an introduction by the Right. Hon. C. A. McCurdy, K.C., M.P. London: L. J. Gooding. 1921. (Demy 8vo, pp. 111. 6d.)

[12] *Lehrbuch der Geschlechtskrankheiten; für Aerzte und Studierende.* By M. Joseph. Eighth edition. Leipzig: G. Thieme. 1921. (Sup. roy. 8vo, pp 217; 54 figures, 1 plate. M.54; bound, M.68.)

MEDICAL AND SURGICAL APPLIANCES.

Instrument for the Treatment of Haemorrhoids by Suture.

DR. JAMES MACMUNN (London, E.C.) writes: To cause a wound to heal by first intention rather than by the slow method of granulation (ligature method) is surely more surgical, and it is chiefly to ensure quick union and to guard against sepsis that I wish to bring the present method for the treatment of haemorrhoids by suture into notice. The forceps illustrated is a modification of Ricard's phimosis forceps, but the slot is much smaller, allowing only the passage of a small domestic needle. It is also open at the end. A is an enlarged section showing how the tissues are compressed above and below the slot for suture. The forceps is clamped on the pile in the gut axis and the pile lifted well into the blades by a pile forceps before clamping. The pile is then cut off and the suture, anointed with bipp, is used as shown in the lower part of the illustration; B embraces the pile supplying artery. Very little sustaining power is required by the suture to keep the tissues together; they are pressed into apposition and bipp is rubbed over the part. The instrument is made for me from my model by the Holborn Surgical Instrument Company.



A Self-Retaining Vaginal Retractor.

MR. B. K. TENISON COLLINS (Cardiff) writes: This retractor has been designed to dispense with side retractors held by assistants. It can be used by itself or in conjunction with an Auvard speculum. When in position with the spring above, the blades lie parallel and do not squeeze out. It is quite out of the way of the operator, and gives a good view of the cervix and vaginal fornices. It protects the vaginal walls, is cheap to make, easy to clean, has no loose pieces, sharp angles or points, and takes up little room in the instrument bag. I have used it now for some time, and find it very useful. It has been made for me by Mr. Staniforth, of Cardiff, to whom I wish to express my thanks.

THE new number of the *Journal of Obstetrics and Gynaecology of the British Empire* is a double number—autumn and winter, 1921 (Manchester: Sherratt and Hughes, 24s. net). It is almost wholly devoted to a series of papers on Caesarean section. We hope to refer to the issue at length on some future occasion.

PROFESSIONAL SECRECY AND MEDICAL EVIDENCE.

BY

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THE ruling, first given by Lord Mansfield at the trial of the Duchess of Kingston for bigamy in 1776, and at later dates repeated by other judges, that a medical man has no privilege to avoid giving evidence on the ground that his knowledge was gained in the practice of his profession, has ever since been accepted by the medical profession as the law on this subject. The issue, however, by the Ministry of Health of the Public Health (Venereal Diseases) Regulations in 1916 has led to some questioning of the hitherto recognized ruling. These regulations were made under the powers conferred on the Local Government Board by the Public Health Acts of 1875 and 1896, and the Public Health (Prevention and Treatment of Disease) Act of 1913, which authorize the Board to make, alter, and revoke regulations with a view to the treatment of persons suffering from cholera or any other infectious disease, and to make regulations for the provision of medical aid and for guarding against the spread of the disease. Article 22 of the Venereal Diseases Regulations runs as follows:

> "All information obtained in regard to any person treated under a scheme approved in pursuance of this article shall be regarded as confidential."

The suggestion that this regulation affected the law relating to professional secrecy in the witness box was first made in the case of Garner *v.* Garner in January, 1920. This was an undefended divorce case in which the petitioner desired to call evidence that she had suffered from venereal disease. She had been treated under a Venereal Diseases Scheme, and before giving evidence the medical witness called the attention of the judge to the obligation of secrecy which was imposed upon him. Mr. Justice McCardie said that in a court of justice there were even higher considerations than those which prevailed with regard to the position of medical men, and he ruled that the witness must answer the questions put to him.

The point again arose in the Divorce Court in a case heard before Mr. Justice Horridge in June, 1921. The medical witness in this case stated that he and other medical men had undertaken duties at the clinic on the distinct understanding that professional secrecy as to what happened there would be observed, and referred to Article II (2) of the Public Health (V.D.) Regulations quoted above. The judge replied that the Ministry had no powers which affected the jurisdiction of the courts, and required the witness to give evidence.

The question was fully discussed at the Annual Representative Meeting of the British Medical Association, and on July 15th, 1921, the following resolution was passed:

> "That the Association use all its power to support a member of the British Medical Association who refuses to divulge without the patient's consent information obtained in the exercise of his professional duties, except where it is already provided by Act of Parliament that he must do so."

Lord Dawson gave notice to call attention, in the House of Lords on July 27th, "to recent rulings as to the privilege of medical men with regard to evidence in courts of justice, and to move that the matter be referred to a Select Committee of the two Houses of Parliament." At the request of the Government, he agreed at the last moment to postpone the motion. At the time of writing, the notice of motion still remains on the Order paper of the House of Lords, but no opportunity of moving has occurred.

It may be stated at once that there is no doubt that the rulings given by Mr. Justice McCardie and Mr. Justice Horridge are sound law, and that the regulations issued by the Ministry of Health do not override or modify the law of evidence. This is in conformity with the general principle that when in an Act of Parliament the details of any procedure are left to be settled by regulations made by an administrative authority, it is implied that these regulations must be in conformity with the principles laid down in the Act or in other Acts, or established at Common Law. In so far as any regulations made by the administrating authority infringe the law, they are *ultra vires* and of no effect. In the actual instance there is no reason to suppose that those who framed Article II (2) of the Regulations did intend that

it should apply to medical evidence in the witness box. The word "privilege" is not used, and it must be assumed that if the Local Government Board had intended to upset a recognized legal principle it would have made its position clear. On the other hand, the apparent comprehensiveness of the regulation fully justified the medical witnesses in making protest before giving evidence.

The view that privilege should exist between doctor and patient in the witness box is one which at first sight is likely to commend itself to medical men, imbued as they are with the lofty ethical traditions which govern the question of professional secrecy. Nevertheless, the recognition of such privilege would be a startling innovation in English law, and there are difficulties and objections to it which only present themselves on careful consideration of the question. Before noting these it may be useful to examine the procedure adopted in certain foreign countries and the experience gained therefrom.

The Law in the United States of America.

In America the law varies from State to State, and in about one-half of the jurisdictions professional privilege to varying degrees has been established between physician and patient. The following are instances of the State laws:

Arizona.—"A physician or surgeon cannot be examined without the consent of his patient as to any communication made by his patient with reference to any physical or supposed physical disease, or any knowledge obtained by personal examination of such patient; provided that if a person offer himself as a witness and voluntarily testify with reference to such communications, that is to be deemed a consent to the examination of such physician or surgeon."

Arkansas.—"No person authorized to practise physic or surgery shall be compelled to disclose any information which he may have acquired from his patient while attending him in a professional character, and which information was necessary to enable him to prescribe as a physician or do any act for him as a surgeon."

California.—"A licensed physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient—but this subdivision does not apply in an action between physician or surgeon and his patient in which the treatment of the patient by the physician or surgeon is in issue; and provided that in an action brought under Sections 376 and 377 (for death by wrongful act) a physician or surgeon is competent to testify as to the cause of death of the deceased."

New York.—"No person duly authorized to practise physic or surgery shall be required to disclose any information which he may have acquired in attending a patient in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician or to enable him to do any act for him as a surgeon; provided a presiding judge of a superior court may compel such disclosure if, in his opinion, the same is necessary to a proper administration of justice."

Pennsylvania.—"No person in any civil case shall be allowed to disclose any information which he acquired . . . which shall tend to blacken the character of the patient, without his consent."

It will be seen from the foregoing that there are considerable differences in the various States, and that the privilege is more comprehensive in some than in others. We need not examine in detail the practical effects of the legislation in each State. It is sufficient to say that commentators on American law and experience do not find that the States in which medical professional privilege does not exist are at any disadvantage as compared with those where privilege has been admitted, and they consider that in the latter the system has often led to serious abuses militating against the administration of justice. Wigmore, for instance, says:

"Certain it is that the practical employment of the privilege has come to mean little but the suppression of useful truth—truth which ought to have been disclosed and would never have been suppressed for the sake of any inherent repugnancy in the medical facts involved. Nine-tenths of the litigation in which the privilege is invoked consist of actions on policies of life insurance, where the deceased's misrepresentations of his health are involved; actions for corporal injuries, where the extent of the plaintiff's injury is at issue; and testamentary actions where the testator's mental capacity is disputed. In all of these the medical testimony is absolutely needed for the purpose of learning the truth. In none of them is there any reason for the party to conceal the facts except to perpetrate a wrong on the opponent."

The Law in France.

In France, Article 378 of the Penal Code provides as follows:

"Physicians, surgeons, and others concerned with health, such as pharmaceutical chemists, midwives, and other persons, the recipients by their position or profession of secrets which have been confided to them, who, except when the law requires them to give information, have revealed these secrets, will be punished with imprisonment from a year to six months and a fine of 100 to 500 francs."

As in this country, the law definitely requires from medical men certain professional information, such as declarations of birth or of infectious diseases, which, in the interests of the community, should be known, and in the discharge of these obligations medical men are protected by the words "except when the law requires them to give information." It is interesting to note, incidentally, that in regard to syphilis the law goes further than in this country, and that in some cases where there is risk of infection the medical man is not only absolved from secrecy, but is required to give warning to persons specially exposed to the risk. For instance, if, after attending a syphilitic infant, a medical man failed to warn a nurse of the danger, and she contracted the disease, she would be entitled to bring an action against him.

The extent to which the giving of medical evidence is regarded as one of the exceptions to the general principle depends upon certain conditions. Article 80 of the *Code d'Instruction Criminelle* requires any person summoned to appear as a witness to attend and give evidence, and a doctor, as any other citizen, is bound by this obligation. The conflict which accordingly arose between these two obligations was dealt with by a judgement of the Court de Cassation in 1845 in the following terms:

"Whereas every citizen is bound to assist the ends of justice when interrogated as a witness, no one, whatever his profession, is completely relieved of this obligation; it is not sufficient for a member of one of the professions bound to secrecy by Article 378 to claim as an excuse for not giving evidence that it was in the exercise of his profession that the material on which he is to be interrogated has come to his knowledge; but it is otherwise when the material has been confided to him under the seal of secrecy, to which he is bound in consequence of his profession."

Under this judgement, accordingly, the medical man was only relieved of the obligation of giving evidence in reference to facts which had been confided to him under the seal of secrecy, and not in reference to facts which had come to his knowledge through the exercise of his profession.

Subsequent decisions have helped to make clear what are to be regarded as facts communicated under the seal of secrecy. In 1853 a medical man, when called upon to give evidence on matters which had come to his knowledge in the exercise of his profession, replied: "I consider as confidential the reports which have brought to my knowledge the facts on which you interrogate me. I cannot therefore reply to your question." This reply was accepted.

The formula: "I consider as confidential" has been held to safeguard all the interests of the patient. To require the medical witness to state formally that there has been a confidential communication would be equivalent to stating that there has been an important secret to hide. As a matter of fact, it is now admitted that a doctor, in order to preserve silence, is under no necessity of invoking confidence. The facts which he learns by the exercise of his profession are secret by their nature.

In 1885 the Court de Cassation expressed the view that information which had been confided under the seal of secrecy, or, in default of this condition, were secrets by their nature, and the knowledge of them had been acquired by the witness in the exercise of his profession, fell within the scope of Article 378. Finally, in 1899 the Court de Cassation, in a case in which a life insurance company demanded the cancelling of a policy on the ground that the assured suffered from a malady which he had not declared, absolved a medical witness from giving evidence in the following words: "Since the fact, secret in its nature, on which Dr. X. had been called to depose, could only have come to his knowledge by reason of the treatment which he had given to his patient, he was for this reason forbidden to reveal it."

It is of interest to note that secrecy is obligatory even when the person concerned has authorized the medical man to speak. A judgement of the Court of Montpellier in 1827 lays down:

"The obligation of secrecy continues to exist even where he whom the facts concern, and who has confided them to another, demands the revelation; for the obligation prescribed by Article 378 is established in the general interest. It is only by this means (*à ce prix*) that professions, the exercise of which concerns the whole community, can secure the necessary confidence and consideration."

The court show themselves very severe in this matter. Even revelation by a medical man in the witness box of a fact which is no longer secret may still be an offence.

For instance, Dr. X. had given a certificate for placing a lunatic in an asylum. Some years later the patient, who had recovered and had been released, was seeking a divorce. Dr. X.

was called as a witness, and read and commented upon his certificate. He was convicted of a breach of professional secrecy, although the state of insanity of the husband was not a secret, since he had been confined in an asylum, and could only have been so confined under a medical certificate.

It is true that the Presidents of the Cours d'Assises do not appear always to have regarded the question in the same manner.

For example, in 1906, the President said to a medical man who refused to speak: "There is one case in which professional secrecy ought not to prevent you from speaking; it is when you, a medical man, have discovered indications of a crime." In the same year, in a case of poisoning brought before the Cours d'Assises of the Gironde, medical practitioners and consultants had refused to reply to questions put to them, even after their patient had absolved them from professional secrecy. They were severely criticized by the President, and even threatened with proceedings.

In spite of these utterances, however, it may be regarded as recognized that in France medical men can, without fear of proceedings, refuse to give evidence on matters which have come to their knowledge in the exercise of their profession. The right to maintain secrecy does not, however, exempt a medical man from appearing when he is summoned to give evidence. He can even be required to take the oath, and is absolved by declaring afterwards that the facts are such as cannot be revealed by him. In one case where a medical man refused to take the oath a fine of 100 francs was imposed.

The Essentials of Privilege.

In English law privilege is only admitted between solicitor or counsel and client. It has been stated to exist in regard to communications in the nature of confessions made to ministers of religion by members of their congregations, and particularly statements made to Roman Catholic priests in the confessional. This, however, is not the case, but in the very few instances in which the question has been raised in the courts the presiding judge has not pressed the witness to reveal the confidences made to him.

It is an established principle of English law that every member of the community must assist justice to attain its ends, and the law has only recognized privilege in the witness box where very strong reason for it exists. The legal view is that the following four fundamental conditions must be fulfilled before a privilege can be established:

(1) Communications must originate in a confidence that they will not be disclosed;
(2) This element of confidentiality must be essential to the full and satisfactory maintenance of the relation between the parties;
(3) The relation must be one which, in the opinion of the community, ought to be sedulously fostered;
(4) The injury that would result to the relation by disclosure of the communications must be greater than the benefit thereby gained for the correct disposal of litigation.

Brief consideration will show that, as regards information gained by the physician in the exercise of his profession, none of these conditions are fulfilled. With reference to (1), it is obvious that, as regards the vast majority of the communications made by patients to physicians, such as the details of the malady, state of health, effect of treatment, etc., a patient is not particularly concerned that secrecy should be observed. Nor can it be said that the absence of privilege in this country has prevented a full and satisfactory relationship between physician and patient. There is no reason to suppose that the community wishes to establish privilege between physician and patient. The experience of other countries has shown that the extremely small number of cases in which the patient gains an advantage by the existence of professional privilege do not counter-balance the injury to the whole community which arises from the fact that privilege enables material to be concealed, knowledge of which would promote the ends of justice. The argument that because privilege is recognized between solicitor and client, it should also be admitted between doctor and patient, is unsound, for it is obvious that the whole relationship between solicitor and client would fall to the ground if the client did not know that his statements would be kept secret. If privilege between solicitor and client did not exist, all that would be necessary for prosecutor, plaintiff, or defendant to do, would be to put the solicitor for the opposite party in the box and examine him on what had passed between him and his client. In this matter, accordingly, there is no analogy between the medical and the legal professions.

Conclusion.

To sum up, then, while it is admitted that under the present system in rare instances hardship to the patient arises, and the medical man is placed in a position of embarrassment, it is not clear that the recognition of medical privilege in the witness box would be of advantage to the community as a whole. The experience of other countries shows that the privilege is often an avenue for the perpetration of an injustice, and its existence in this country would not be in accordance with the principles and traditions of English law.

MEDICAL TERMS IN THE VERNACULAR AND IN DIALECTS.

I.

AGNAILS OR HANGNAILS.

AGNAIL or hangnail is the term which in the vernacular is given to the troublesome little sliver or shred of separated skin which is found occasionally at the base of the nail in the neighbourhood of the quick. It is both sore and painful: the soreness is due to the raw tissue left by the separation of the epidermis, whilst the pain is caused by the tug which happens when the little cutaneous slip is caught by any passing object where it is still attached to the surface. Both these discomforts are soon removed by cutting the shred close off, and painting the spot with some tincture of iodine. To the operating surgeon who has to keep his hands fit, and to the manicure who has to make other people's hands beautiful, these hangnails are a matter of some moment: for the irritation they cause is out of all proportion to their size; they are always unseemly; and, in the case of persons who use their hands much in contact with infective materials, they may be actually dangerous.

Agnail is a sort of chameleon among words: it appears in ordinary vernacular English both as agnail and hangnail, whilst in the dialects it has the forms of angnail, angernail, nangnail, gnangnail, nengnail, nagnail (that is, an agnail), and thangnail (that is, th'angnail). Besides varying in appearance, it is also rich in synonyms, some of which reveal a certain grim or caustic humour in their construction. Thus, in Cumberland, Staffordshire, and other counties it is called a "back-friend," the word being used, one must suppose, in the sense of secret enemy. Wright, in the *English Dialect Dictionary*, gives an illuminating quotation in the words: "He had a troublesome 'back-friend' or 'agnail,' at which he often bit." Another expressive name is "step-mother's blessing," which speaks, so to say, for itself. "Idle-wart," "idle-welt," "idle-wheal," and "idle-back" are Lincolnshire and Northamptonshire synonyms which seem to hint a belief that these painful little tags of skin appear upon the fingers of the lazy. This use of the word "idle" brings back to memory the "idle worms," said humorously to grow in the fingers of people averse from work; and Shakespeare was probably thinking of them when (in *Romeo and Juliet*, I, iv, 64-66) he spoke of Queen Mab's wagoner as—

> "a small grey-coated gnat,
> Not half as big as a round little worm
> Prick'd from the lazy finger of a maid."

"Fan-nail" is yet another Northamptonshire synonym, the little sliver being compared to a fan, or perhaps carrying the sense of fang or claw in it. "Nail-hag" is either a synonym or merely "agnail" inverted; "rag-nail," employed in the north of Ireland, explains itself.

The Scots equivalent is "anger-nail," but this is really a corruption of angnail devised to give a plausible meaning to the word, for in the North "to anger" signifies not only to irritate but also to inflame, and so the idea is conveyed of a nail which has become inflamed and sore. There is here, and perhaps also in "rag-nail," a perversion of the original word "agnail" by pseudo-etymology; and this change has occurred several other times in connexion with this same term. There is thus revealed a curious chapter in the history of word-forms.

To begin with, agnail is the Old English "ang-naegl," which comes from "ang," meaning compressed and therefore painful (one thinks of our everyday expression "anguish," with, however, quite a different etymology), and "naegl," a nail. Only the "nail" here intended is not that of a finger or toe (*unguis*) but a nail of iron (*clavus*). In complete accordance with this derivation, which goes back to the Old High German, the Frisian, and the Gothic, agnail had originally the meaning of a corn on the foot. Sir James Murray, in the *New English Dictionary*, gave illustrative quotations of agnail as "corn" ranging from 950 to 1783; but it is now obsolete. Not so, however, in the dialects: for

in several of the northern counties of England (for example, Cumberland and Lancashire) agnail is a corn, and in Yorkshire it is also a bunion. The association of ideas between a corn on the toe and a nail being driven into the flesh does not call for elaborate justification. "Nangnail salve" is a black resinous ointment sold to the afflicted for the cure of corns in sundry parts of the country.

The next change in the meaning of agnail was due to the "nail" part of it coming to be referred to the nail of a finger or toe; and so it came to signify any painful swelling, ulcer, or sore in the neighbourhood of the finger or toe, and especially a whitlow. Curiously enough Johnson in his *Dictionary* gave "a disease of the nails, a whitlow, an inflammation round the nails," as the only meanings of agnail; and he did not illustrate its use. Pseudo-etymology is surely at work again here; but a question arises as to the form it has taken. Nail misinterpreted obviously played its part in drawing attention to the fingers, but Sir James Murray thinks that a confusion with the French "angonailles," botches, bumps, or sores, or the mediaeval Latin "anghiones, anguinalia," carbuncles, may have fixed the pathological nature of the swelling. Further confusion was introduced when agnail came to be collated in the dictionaries with the Greek *παρονυχία*, a whitlow; *παρ'* was "beside" and *ὄνυχ-*, a "nail," and so "ag-" meant "at," and "nail" explained itself, giving whitlow! The Scots, too, with their "anger-nail" (inflamed nail) would come in here to confound confusion. No wonder Bailey's *Dictionary* in 1721 defined agnail as "a sore at the root of the nail," and as "a sore slip of skin at the root of a nail" in editions later than 1737; for there seemed to be no restricting the sense of the word at all. Why not search for another plausible etymology in "hang-nail"—for example, something hanging from a nail?

In this way the usual present-day meaning of agnail is reached, although it still may be employed for whitlow, and is so employed dialectally in Cornwall. The Sydenham Society's *Lexicon* (1879) defined the word in this modern sense: "agnail, a term applied to the shreds of epidermis which separate from the skin covering the root of the nail, and which, on being torn, give rise to a painful state of the fingers." So there have been at least three senses in which the word has been used. An interesting sidelight is thrown on the confusion which existed in the seventeenth and eighteenth centuries in regard to this word by consulting the English-Latin part of the dictionaries of Littleton and Holyoke. In the former (1678) agnail appears with two meanings: the first is "a corn growing upon the toes, *clavus pedis, pterygium*"; and the second is "a sore between the finger and nail, *paronychia*." It is, however, to be observed that the third or present-day meaning is here concealed under the Latin term *pterygium*, for in the other portion of the *Dictionary* it is defined as "the going away of the flesh from the nail with great pain." Holyoke (1677) gave only the one meaning of "a corn growing upon the toes," but he entered two Latin equivalents—*pterygium* and *callus*, still further broadening its signification. George Gascoigne, in the lines prefixed by him to Turberville's *Noble Art of Venerie* (1575), was also in some doubt as to the precise meaning of agnail, for in rhyming of the virtues of corns (hornes) as medicines, he wrote as follows:

> "As first, they heal the head from turning of the brain;
> A dram thereof in powder drunk doth quickly ease the pain.
> They skin a kybed heel, they fret an anguayle off;
> So thus I skip from top to toe, yet neither scorn nor scoff.
> They comfort fever's faint and lingering long disease:
> Distill'd when they be tender buds, they sundry griefs appease.
> * * * * * *
> They poison do expell from Kaiser, King, and Queen,
> When it by chance or deep deceit is swallow'd up unseen."

It is evident, therefore, from what has been said that the meanings given to the words agnails or hangnails have mainly flowed in three channels. At first they were synonymous with corns, but this channel is now practically dry so far as the ordinary vernacular is concerned, and only a small trickle from the dialects passes along it. Then they had the significance of painful swellings or sores near the nails, and a considerable current ran along this second channel of meaning, and, indeed, still runs both in the vernacular and in the dialects. But the chief current is found in the third channel; agnails or hangnails now are regarded as little painful shreds of torn epidermis situated near the nails of the fingers. Under various forms they appear with this significance in the vernacular, and they are widespread in the dialects. From a philological point of view the most interesting thing about them is the ingenuity which has been shown in devising spurious etymologies for them in order to explain their dialectal forms; to anyone not well versed in the pitfalls which surround all such attempts they must seem not only plausible but practically convincing, thus yielding support to the saying that obvious derivations are likely to be wrong ones.

J. W. B.

MOTOR CARS: THE SPARE PARTS PROBLEM.

IN regard to Dr. Garman's criticism (December 31st, 1921, p. 1121) of Mr. Massac Buist's article on the spare parts problem, published in our issue of December 17th, 1921, page 1045, Mr. Buist makes the following observations on Dr. Garman's seven heads:

1. The special urgency of the spare parts problem, as applied to members of the medical profession, was set out at length in the first paragraph of the article which is the basis of Dr. Garman's remarks.

2. Dr. Garman assumes that the spare parts problem concerns some members of the British motor industry only, and not American manufacturers; whereas the article in question illustrated in a number of ways how the spare parts problem exists also in connexion with the use of some foreign cars, including American varieties, though its cause is sometimes of a quite different character from that which governs the situation of the given British manufacturer. Let it, however, be made plain that the buying of a foreign car does not mean that the purchaser will not have difficulty in obtaining spare parts. These possibilities were set out at length in the article.

3. Dr. Garman here raises a question no less large than the proposition whether motor car development should have been arrested compulsorily in, say, 1906 and no progress made in evolution as from that date. His other statements here are of a highly controversial kind, but they do not concern the proposition in hand, since the article on which these remarks are based was not concerned with advancing the claims of one particular car against others. Further, it is sufficiently established that the world in general demands progress in motor vehicle design.

4. The statement that I have endeavoured to do my "best to bolster up a rotten state of things," on which the whole significance of this paragraph of Dr. Garman's is based, is not true in substance nor in fact, in that the tenor of my article was to illustrate, in the case alike of home and of foreign vehicles, not a desirable state of affairs, but the state of affairs that obtains owing to a variety of reasons set forth, this being a world in which man must necessarily live in a state of compromise. I am essentially a realist, and as such have to deal with facts, between which and wishes there is always a very clear and wide division.

5. Dr. Garman avers that I offered superfluous advice *re* making deposits to cover the costs of spare parts such as may be required; and dilates about "such a ridiculous proceeding." He entirely misses the point, made abundantly plain in the article in question, that the suggestion was not mine; and that I deprecated such a course because a medical man had made that suggestion in a letter sent to your offices privately. It is therefore evident that such advice as I gave was needed, in that at least one medical man had been entertaining the idea.

6. This paragraph, like all the preceding ones, is based on the assumption that I have striven to support a case for the British industry, and that all is well with the members of foreign industries. A re-reading of the article on which all these contentions are founded would prove that such assumptions are entirely false. The motorist experiencing difficulties in obtaining spare parts may be the owner of a foreign car, or of a British one; whereas Dr. Garman assumes that the British industry is the only one at fault. I know that, on the contrary, the spare parts problem obtains in the case of the world's motor vehicle products in general, no matter of what country of origin. I therefore confined my attention to illustrating causes of unsatisfactory service to the end that medical men might be on the look-out for them and so safeguard themselves in ways indicated. But I regret I have no power to recast the actual conditions of motor trading the world over at this crisis in commercial history.

7. This is a continuation of the sixth point. The only further observation I have to make is that I cannot agree with anyone who advocates that if A is found to be at fault the owner of A should express his feelings in such a manner as to condemn all the letters in the alphabet. My theory is merely that when A is found to be at fault A should be specified in any condemnatory remarks; just as when Z is at fault the same should be done in respect of Z, instead of embracing the whole of the letters of the alphabet in the censure.

In conclusion, Mr. Buist writes, it would appear that I should make it plain that the various points touched upon in my article of December 17th are not of my raising, but have been brought to my notice by various medical men, for whose service I therefore set out the facts as they exist in the world of motor building and trading to-day, which is, as always, controlled by the bankers. Hence many desirable things are nevertheless impracticable because these businesses must be each a form of commercial enterprise. To deal with phases that are satisfactory was not my affair on the occasion in question.

WORK OF THE PENSIONS MINISTRY.

THE fourth annual report of the Ministry of Pensions, which covers the period from April 1st, 1920, to March 31st, 1921, gives us a vivid picture of the human wreckage left by the war. At the end of the year the total number of awards of all kinds in force amounted to 1,760,000, of which 1,200,000 were in respect of disabled officers and men, and 560,000 in respect of widows and dependants. The total number of beneficiaries of all kinds was 3,365,000. Wounds and injuries accounted for about 42 per cent. of the total awards which have been made to officers and men, and 4 per cent. of the disablement awards were in respect of permanent disablement.

The total expenditure of the Ministry for the year was £105,660,000, as compared with £98,934,666 in the previous year. The average cost per occupied bed in the larger hospitals of the Ministry was 9s. 7d. per day.

FACILITIES FOR TREATMENT.

During the year under review 278,277 men were discharged from treatment, this figure not including those who had received home treatment; 148,818 remained under treatment at the end of the year. These were distributed as follows:

	In-patients.	Out-patients.
Orthopaedic	4,025	24,580
Paraplegic	260	231
Epileptic	597	544
Neurasthenic	2,951	6,975
Tuberculous	4,563	12,045
Rheumatic	1,015	2,897
Convalescent	1,018	
General, medical and surgical ...	8,747	38,601
Malaria	508	17,682
Dysentery	254	1,472
Other tropical diseases	45	708
Treatment and training	2,329	270
	26,342	106,005

In addition 16,471 men were receiving treatment at their homes and 6,271 pensioners classified as service patients were under treatment in mental hospitals.

Treatment has been provided partly by arrangements with civil hospitals and partly at clinics and hospitals under the direct control of the Ministry. In many cases the per capita fees paid to the civil hospitals have been increased. The following information is given with regard to certain classes of disability.

Special Surgical Cases.

At the end of the year 319 clinics had been opened for this type of case, 60 being under the direct control of the Ministry and the remainder under the administration of civil hospitals, the British Red Cross, or private individuals.

Neurasthenia.

There was an increased demand for treatment for neurasthenia, and eight additional hospitals, with a total accommodation of 1,356 beds, were established. One hospital with 185 beds was, however, closed. Forty-eight clinics for the treatment of neurasthenia had been opened at the end of the year. Much attention has been devoted to this disease. Its treatment presents many difficulties, not the least of which is the patient's liability to relapse during a period of economic or domestic stress. Full provision has been made for psychotherapeutic and other special forms of treatment, and successful results have been obtained by means of occupational treatment during a stay in hospital, particularly where it was possible for the patient to return to employment immediately on discharge. In connexion with this form of treatment, workshop officers were appointed to act in liaison between the medical staffs and employers of abour.

Tropical Diseases.

At the end of the year 61 clinics were in existence, 54 of which had been established by the Ministry. The efficient treatment of tropical diseases has been found to depend upon expert clinical and pathological investigation in conjunction with the systematic recording of the history and progress of the case. In these respects there has been marked progress in the treatment of pensioners, and the type of disease has, in each case, been accurately classified. A large number of pensioners have been cured. The invasion of this country by tropical diseases has been stemmed, further dissemination has been obviated by preventive measures, and such special conditions as bilharziasis dealt with in the light of the latest expert knowledge. It is considered probable that in the future there will be a decline in the need for treatment of tropical disease, especially in the case of malaria.

Aural, Ophthalmic, and Cardiac Diseases.

During the year 36 aural clinics, 24 ophthalmic clinics, and 19 cardiac clinics were established, of which 16, 9, and 15 respectively were under the Ministry's control. Modern methods of diagnosis and treatment of cardiac diseases have been employed in the hospitals and clinics, and large numbers of pensioners suffering from functional disorders of the heart have been restored to working capacity.

Mental Diseases.

The care and treatment of the insane devolves upon the Board of Control, which is responsible to the Minister of Health. The Minister of Pensions is, however, intimately concerned with the care of certified pensioners, and an effective liaison has been established. Medical officers of the Ministry of Pensions with special experience of the treatment of mental diseases systematically visit mental hospitals and interview the pensioners under treatment. The close co-operation established has secured for the pensioner efficient treatment combined with the greatest degree of freedom and comfort compatible with the mental condition.

Tuberculosis.

The Ministry of Pensions co-operates with the Ministry of Health in the provision of adequate treatment for pensioners suffering from this disease. It has been decided that men who, on conclusion of treatment at a sanatorium, and who (when they are recommended to do so) undergo a prescribed course of treatment or training at a training colony, should be granted a pension at the rate of 100 per cent. for a period of six months after completion of such treatment or training, followed by a pension at the rate of not less than 50 per cent. for a further period of two years.

CONVALESCENT TREATMENT AND TRAINING CENTRES.

Seven of these centres, with a total accommodation of 2,382 beds, have been established. The training given at the centres is generally a preliminary part of the courses of training approved for men trained under the Ministries of Labour or Agriculture and Fisheries, although in some cases the course of training may be completed at the centre. In the case of "special" trades with which trade unions are specially concerned it is necessary to obtain the approval of the Trades Advisory Committees both as to the suitability of the trading arrangements and the individual fitness of the men to be trained. Notwithstanding difficulties and industrial depression, which affected employment in practically all trades, about 1,000 men had by the end of the year completed a course of concurrent treatment and training and were able to pass forward for the completion of training under ordinary conditions, or to take up employment.

MEDICAL BOARDS.

During the year 1,167,606 officers and men were examined, as compared with 1,038,905 examined during the preceding year. In addition, 4,393 examinations at discharge centres and 16,568 domiciliary examinations were necessary, since the pensioner's condition did not allow of his attendance before a board. The Medical Appeal Boards examined 71,332 officers and men. Thus during 1920–21 only 6 per cent. of the assessments of medical boards were challenged. Of the appeals 54 per cent. of the assessments were unaltered.

The report deals with various other matters not specially of medical interest. As a whole it demonstrates clearly that much energy and skill is being devoted by the Ministry of Pensions to the restoration to health of wounded and disabled officers and men, in so far as that is possible.

British Medical Journal.

SATURDAY, JANUARY 14TH, 1922.

INFLUENZA.

SINCE the end of the third phase of the 1918–19 pandemic influenza has assumed threatening proportions twice. Early in 1920 outbreaks on a considerable scale began to occur in America, while the Ministry of Health gave warning of the existence of the disease in this country in the form of localized epidemics. In the great towns of England and Wales the numbers of deaths from influenza and of notified cases of pneumonia began to rise fairly steeply from the third week of the year and reached a maximum—392 deaths from influenza, 1,770 notifications of pneumonia—in the thirteenth week. The subsequent decline was, in the case of deaths from influenza, more gradual than the ascent, eleven weeks being required before the deaths fell to less than 100. In this recrudescence the proportion of deaths at ages 25 to 45 was 35 per cent., almost as many as in the first wave of the 1918–19 pandemic.

At the beginning of 1921 the deaths just exceeded a hundred a week, but then declined, and the vernal increase was comparatively trivial, the maximum at the beginning of March amounting to only 167. By the middle of May there were fewer than 100 deaths, and no significant movement took place until November. At the end of that month an increase began; 128 deaths were recorded in the week ending December 3rd, and the four following weeks have yielded 149, 212, 237, and 418 deaths. There has been a coincident increase of notified pneumonia, these five weeks having contributed 972, 1,013, 1,134, 1,157, and 1,235 cases. The proportions of influenza deaths in the age group 25 to 45 for the last two weeks of the year have been 21.5 per cent. and 25.6 per cent. In a comparison between the present position and that of the spring of 1920 the following features are to be noticed. The actual number of deaths attributed to influenza is already slightly larger than in the worst week of 1920 and the rate of increase is perceptibly faster. A qualification of this remark is perhaps needed, inasmuch as the statistics of the last week of the year may be disturbed by the holidays, but such disturbance was not noticeable in the influenza returns of 1920 and can hardly be of great importance. In predicting the immediate future, the sudden change of the weather last week must be taken into account, and, on the whole, it is probable that the first week of 1922 will provide a considerable increase of recorded deaths from influenza.

Are we, then, on the brink of another great epidemic? Against such an hypothesis are three statistical facts. The first is that the increase of notifications of pneumonia is much less pronounced than in the quite minor recrudescence of 1920. The second is that the proportion of deaths at ages 25 to 45, although increasing, is still much less than in 1920. The third is that in at least two of the northern manufacturing towns where influenza has been epidemic within the past two months the number of deaths have declined decisively. Clinical evidence in the same direction is that, in these cities, where special inquiries have been made, the pneumonia which was so terrible a complication of the pandemic has been a rare event and none of the so-called "heliotrope cyanosis" has been seen.

Again, if the statistics of the cities to which we referred above—Sheffield and Rotherham—be examined, it will be seen that the course of events has been quite similar to that of earlier and, relatively to 1918–19, mild outbreaks—namely, a rapid rise and fall, the complete sequence occupying only from four to six weeks. Always excepting the *annus mirabilis*, influenza of the past two generations has tended to become epidemic either at the end of the year or in the early spring. Looked at from the point of view of periodic recurrence—a subject which Dr. Brownlee has illuminated, and one which, as mentioned in the report of the Medical Research Council for 1920–21, is being subjected to experimental investigation—the present recrudescence is in season. It will be remembered that Dr. Brownlee concluded that the normal period was of approximately thirty-three weeks, autumn epidemics being aberrant. The last week of 1921 was the ninety-second from the maximum of the 1920 recrudescence; thirty-three weeks from the latter brings us into the autumn period, another thirty-three weeks into July, and a third period of thirty-three weeks takes us to the seventh week of this year. Allowing for fluctuations of a week or two either way, and for the probability that we have not yet reached a maximum, the concordance is fairly close.

These various pieces of evidence are consistent, and lead to the conclusion that the present outbreak is likely to resemble one of the minor recrudescences, such, for instance, as that of 1893–94, which was responsible for rather more than 2,000 deaths in London. This is, indeed, the conclusion which we think an epidemiologist would draw from the available data. But with the events of 1918–19 fresh in our memories, we should be foolish not to see elements of the problem which are disquieting.

Reference to the diagram prepared by Dr. Stevenson, and reproduced at p. 40 of the Ministry of Health's Report on the pandemic of 1918–19, shows that only in 1890 did the proportion of deaths in London borne by the age group 25 to 45 reach 30 per cent., and in no year later than 1901 but before 1918–19 did it attain 20 per cent. Examination of the weekly records since 1919 shows that, excepting odd weeks for which the returns were sparse, recovery to the pre-pandemic level has been incomplete. The age distribution of deaths is still quite different from that of the 1889–1917 period. Epidemic influenza has always been formidable on the rebound, and there is a possibility that correlated with the change of age incidence is an increased rapidity and force of rebound. If, to put the matter in the worst possible light, what is now happening is the analogue of the summer epidemic of 1918, the position might become very serious. As we have said, we do not think either the statistical or clinical facts make any such sequence probable, but they do not exclude it. The first evidence of any change of the sort would not be afforded by statistics of deaths but by clinical observation, and this is a time for the careful study of local variations in the type of disease and for rapid dissemination of knowledge.

We have no definite information with regard to the type prevalent at the present time. We have been unable to verify the stories which have been current about persons being taken ill so suddenly in the street as to be unable to get home; but undoubtedly in not a few cases the onset is very rapid. Instances of both the abdominal and of what is called the "cerebral" type have been observed, presenting symptoms which at the beginning have suggested appendicitis or meningitis respectively. Pneumonia, it would seem, has not become a very frequent occurrence. Last October Major Gatt, R.A.M.C., published in our columns a note on a series of cases, apparently influenza, accompanied by an erythematous eruption, which he had observed in the Curragh Camp; in some he had found Pfeiffer's bacillus in the throat in almost pure

culture; but we have not heard of any other cases in Ireland or elsewhere. It would be not only interesting but useful to ascertain whether the majority of the cases of influenza now occurring do belong to any particular type. We understand that the Ministry of Health is making inquiries, not yet complete, on this head, and would be glad to have information from practitioners who have encountered special clinical types. Such information should be addressed to the Medical Officer, Ministry of Health, Whitehall, S.W.1.

THE PROBLEM OF HOSPITAL FINANCE IN LONDON.

HOSPITAL finance in London as a whole is still in a very precarious position, and the temporary aid of the Government, welcome as it has been even in its modified form, has done little to stabilize matters. The cost of necessities may indeed have fallen a few points, but not to an extent appreciable in hospital balance sheets, and while trade remains bad voluntary contributions on the grand scale can hardly be hoped for, so that deficits on the year's working must inevitably be expected. The large provincial hospitals which to-day have least financial troubles are those which depend for the greater part of their income upon systematic contributions from the wage-earners.

In the report of Lord Cave's Committee the view was expressed that in the adoption of one or other of three schemes of mass contributions might be found the key to the financial problem which the voluntary hospitals have to solve. The first was a form of organized collection from wage-earners with no *quid pro quo;* the second, the Oxford scheme, under which a weekly contribution exempts the contributor from the patients' payments required from non-contributors; the third, the Sussex scheme, under which a larger weekly contribution entitles members to free consultation and treatment and to various other benefits inside and outside the hospital. Lord Cave's Committee pointed out that the Sussex scheme, as distinct from the others, implied a contract on the part of the hospitals to provide such institutional benefit as subscribers might require.

At a meeting held at the Mansion House last July representatives of the hospitals discussed these schemes, and requested the King's Hospital Fund to co-operate with the Hospital Saturday Fund, the London regional committee of the British Hospitals Association, and the other central agencies concerned in the organization of local collections from employees. A Joint Conference with these bodies was set up accordingly, and held a series of meetings at which the whole question was explored. Lord Cave's Committee had recommended a first grant of £1,000,000, to be followed, if necessary, by another, to give the hospitals two years' breathing space in which to work out schemes. Instead, the Government limited its grant to a maximum of £500,000, and attached a condition that before any grant (except a few emergency grants in exceptional cases) was made, fresh money had to be raised, or at least must be in sight, up to the combined amount of the emergency grants and of such further grant. Further investigations by the King's Fund had revealed that the estimated deficiencies in ordinary income of the London hospitals for the year 1921 would amount to at least £360,000, and that a number of hospitals had exhausted all their realizable assets and without immediate assistance would have no alternative but to close beds.

The position was placed before the Joint Conference and the London regional committee of the British Hospitals Association, with the result that the King's Fund was asked by the regional committee to prepare a scheme for the organization of a general system of industrial contributions on provident lines. The King's Fund accordingly considered a provident scheme which had been drawn up by a subcommittee of the Joint Conference, and submitted it for the consideration of the London regional committee with an expression of approval of the general lines on which it had been drawn. The regional committee recommended it in principle to the constituent hospitals, which, it is understood, are now considering it. The scheme involves no contract for treatment, but the men and women of the hospital-using classes would be enabled under it to make provision by weekly contributions, and so to obtain exemption from patients' payments when undergoing ordinary hospital treatment, to which they would be admitted in accordance with ordinary hospital practice. In other words, the inquiry as to means which the almoner now makes at the hospital would take place when the contributor joined the scheme, and the hospitals would tell their prospective patients how much they should set aside, week by week, in order that, when admitted to hospital, they need not have to pay a comparatively large sum at a time when they can least afford it, or become a charge on charity intended for the necessitous. It is proposed that a weekly contribution of 3d. should entitle wife and dependent children to the same remission from patients' payments on admission to hospital, and it is hoped that collections will be made at the place of employment, by a request from employees to employer to deduct the contribution from wages, and that employers will contribute a portion of the weekly payment. Few large employers of labour—even those who consider themselves generous supporters of hospitals—have ever contributed sums which are really proportionate to the possible demands of their employees upon the hospitals. The employer of 100 workpeople, for instance, who sends a cheque for 10 guineas to the nearest hospital, hardly realizes that his contribution works out at less than one halfpenny a week for each employee.

The general aim of the scheme is to maintain the voluntary system intact, with its private administration of hospitals and its charitable treatment of the poor, by supplementing the present income of hospitals by the weekly contributions of regular wage-earners, who, by providing for the cost of their maintenance when admitted to hospital, will set free the gifts of charity for those for whom they were intended. It is hoped through the working of the provident scheme to decrease the pressure of minor cases upon the out-patient departments of hospitals by encouraging patients to consult their family doctor first and to come to the out-patient department when advised by him. If this can be effectually achieved the burden of the hospitals will be lightened, for there is no doubt that a considerable proportion of the patients who crowd into hospital out-patient departments could well be dealt with by their family doctors, and it is intended to bring the general practitioner into closer touch with the hospitals. The bounds of private practice would not be encroached upon, but the practitioner would be encouraged to procure freely for his patients, by recommendation and after consultation, those special facilities for diagnosis and treatment which are available only at the hospitals.

Such objections as have so far been made to the proposals outlined are regarded by the King's Fund as being based upon misconceptions and misapprehensions. It is held that the principle of the voluntary system is no more affected by such a provident scheme of weekly payments than it is by the system, now almost universally accepted, of asking patients while undergoing treatment to contribute to the funds of the hospital so far as their means allow; and from the

patient's point of view the former system is thought to be the less onerous. The object of the scheme is to preserve the voluntary system, to obviate bureaucratic control of hospitals, to systematize contributions, and to avoid that overlapping which in the past has been such a wasteful feature of the organization of hospital contributions in London.

THE UNIVERSITY GRANTS.

WE have received from Sir Michael Sadler, Vice-Chancellor of the University of Leeds, a copy of a memorandum which the heads of the sister universities of Birmingham, Durham, Leeds, Liverpool, Manchester, and Sheffield have addressed to the Prime Minister, urging on grounds of national importance the danger of any reduction in the grants now made by Government to the universities and university colleges of Great Britain. Since its dispatch to the Prime Minister, the Vice-Chancellors of the Universities of Oxford, Cambridge, London, Bristol, Wales, Glasgow, and Aberdeen have expressed their concurrence in it in a separate letter addressed to Mr. Lloyd George. The universities have received official information that it is proposed to reduce the grant, which for the year 1921–22 was £1,500,000, by the sum of £300,000. Such a reduction would gravely embarrass the universities in their work, especially in the development of advanced studies in science, medicine, literature, and technology; it will also inevitably restrict the work of the universities in adult education. The memorandum of the six Northern and Midland universities begins by expressing their obligation to the Government for the notable help given towards their support during recent years. It points out that these institutions provide opportunities of university education for 12,000 students, and that, recognizing the need for the utmost economy in public expenditure at the present time, the universities have restricted their outlay within the narrowest limits consistent with continued educational efficiency. To this end personal sacrifices are being made, and many developments, not only desirable in themselves but urgently needed, have been foregone. "But we are persuaded that the grants now made to us by Government are at the lowest level at which the due discharge of our duties to the nation can be guaranteed, and that any retrenchment would be hurtful to public interests and wasteful of outlay already made." With the aid of university grants these institutions were enabled during the war to render to the nation services of vital importance previously unforeseen; if the means are not withheld from them the British universities are in a position to give signal service to the nation during the coming years of peace. It is pointed out that the universities in England and Wales are now (as they have long been in Scotland) representative of the whole people. They are the recruiting and training ground for the great professions and for the public services, local and central; moreover, they train both workers and leaders for industry. The universities advance science, for they are the chief centres of research, and they extend the frontiers of knowledge in all other departments of study. Lastly, by means of student self-government and by the corporate life in residential halls, the universities train men and women for the responsibilities of citizenship. In short, the universities hold the keys of the future. But the funds which they now command are already inadequate. In order to meet their urgent needs every effort of self-help has been made: appeals have been launched, severe economy has been practised, fees have been raised, and the local authorities have nearly doubled their annual grants. "The Government urged us to make the efforts which have led to this measure of success by encouraging us to hope that what we raised locally would be met by a corresponding increase in Government grants." The memorandum then touches on the large measure of support given by the Governments of the United States, Canada, and Germany to their universities, showing the importance they attach to them as centres of training and research. In the United States gifts to universities, up to 15 per cent. of the donor's income, are by Federal Law exempt from Federal income tax. In Canada the universities receive increasing subsidies from public funds. The conclusion, therefore, is that retrenchment in the present grants would threaten the universities of Great Britain with debility and would check their growth. "Their work is part of the life insurance of the nation. To fail to keep up the premiums would, we submit, be unwise." We may express the hope that the Prime Minister, who recently made an eloquent appeal for the University of Wales, will give his sympathetic consideration to the reasoned and convincing appeal now addressed to him by the Northern and Midland universities, backed up as it is by the older universities in England and Scotland, as well as by the University of Wales itself.

LIST OF SCIENTIFIC PERIODICALS.

THE Conjoint Board of Scientific Societies (Burlington House, London, W.1) proposes to provide a world list of periodical publications which contain the results of original scientific research. It is hoped that it will be possible to give in a single octavo volume the titles, in alphabetical order, and the places of publication of all such periodicals in existence on January 1st, 1900, and of all issued after that date. The libraries in London, Oxford, Cambridge, Edinburgh, Dublin, and Aberystwith, which take in such periodicals, would be indicated, and, wherever possible, at least one library in the United Kingdom would be mentioned for each periodical. The scheme aims at supplying a complete list of current scientific periodicals; and, if means are found to carry it out, may form a basis of co-operation between libraries, so that both the number of duplicates and the list of periodicals not received may be reduced. The trustees of the British Museum have consented to allow the compilation of the list to be undertaken by the staff of the Museum, and already a large bulk of material has been collected in the Museum by various societies and by the Conjoint Board. The Museum, however, cannot undertake to defray the cost of printing and publication, but it is hoped that a sufficient number of libraries and institutions will agree in advance to purchase one or more copies at the price of 2 guineas each. The preliminary announcement which has been issued does not attempt to define a scientific periodical, but we apprehend that it is intended to exclude technical publications. It is not clear whether periodicals devoted to medicine would be included, and we understand that the point has not yet been decided. All departments of medicine, hygiene, and pathology, however, suffer more or less from the difficulty described, but it is felt to a very special degree by workers in these subjects in their application to the tropics; in particular the literature on helminthology, and indeed on parasitology generally, is very scattered, and papers which turn out to be of importance may be published in out-of-the-way periodicals, in the transactions of local societies, or in periodicals primarily devoted to some other science, as for instance entomology. Some time ago Professor R. T. Leiper, Director of the Department of Helminthology at the London School of Tropical Medicine, suggested that a list, showing the libraries in London and Liverpool at which periodicals publishing papers on tropical medicine could be consulted, would be of great use to workers, who at present may waste much time in making visits to libraries which do not contain the periodical they want or the particular number they wish to consult. The matter was brought to the notice of the Science Committee of the British Medical Association, which recognized the importance of the suggestion and in consequence a small sum of money was voted to cover preliminary expenses. A number of libraries have now been examined under Dr. Leiper's direction and a considerable amount of material collected, which it is hoped may shortly be made available. The manuscript list has been brought up to date and can now, we believe, be consulted at the School of Tropical Medicine.

SPIRITUAL HEALING.

THE Lambeth Conference in 1920 passed a resolution requesting the Archbishop of Canterbury to appoint a committee to consider and report upon the use with prayer of the laying-on of hands, of the unction of the sick, and other spiritual means of healing. It is contemplated that the findings of such a committee should serve for the general guidance of the Church in the matter of spiritual healing. We understand that a committee has been appointed, that its membership is drawn mainly from the clergy, but includes four or five well known members of the medical profession, and that the committee has already met on two or three occasions. The question of the formation of a ministry of healing was raised some years before the war by some enthusiastic clerics, and associations arose such as the Guild of Health in this country and Dr. McComb's church in Boston, U.S.A. Of the earnestness and sincerity of the founders of these associations there can be no doubt, though the movement may on the surface have seemed suggestive of an effort at a counterblast to "Christian Science." The success alleged in the cure of certain disorders through the agency of these and other forms of faith healing seemed to justify inquiry; and as long ago as 1909 the British Medical Association appointed a committee of investigation. Subsequently a mixed clerical and medical committee met, first under the chairmanship of Archdeacon Sinclair of St. Paul's, and later under Bishop Ryle, Dean of Westminster. This committee carried out a number of important and interesting investigations; but its labours were interrupted by the advent of the war. The committee which has been appointed by the Archbishop of Canterbury may have a somewhat different objective to that of Bishop Ryle's committee, and may be more concerned with the historical evidence for ministries of healing. Nevertheless it will not be able to avoid inquiry into the possibility of the use of what are called spiritual means in the cure of disease; of the methods which may justifiably be employed; and of the relationship of the clergyman and the doctor where such methods are used. Therefore we hope that the Archbishop's committee will make use of the material collected by Bishop Ryle's committee, if still available. Otherwise the paucity of members of the latter committee upon that which has been newly formed is hardly likely to lead to a speedy pronouncement upon a subject which is beset with many difficulties.

MOLIÈRE.

JEAN BAPTISTE POQUELIN, who when he became author and dramatist assumed the *nom de théâtre* "Molière," was born in Paris on January 15th, 1622—at least, his baptismal certificate bears that date. His father, who was upholsterer to Louis XIII, came of a prosperous bourgeois family of Beauvais, and there was once a tradition that some remote forbear was Scottish. Of medical practice in his day Molière was a bitter critic. He first satirized physicians in his farcical comedy *Le Médecin malgré lui*, and returned to the attack in *L'Amour Médecin*. His last comedy was *Le Malade Imaginaire*, in which he himself played the part of the sick man when it was produced for the first time on February 10th, 1673. During its preparation and rehearsal he had been suffering from cough and haemoptysis, and before the third representation, on February 17th, he was so ill that he was advised not to act. He did act, however, but during the performance a violent paroxysm of coughing came on and he was carried away dying from the theatre to his house. Fielding's version of *Le Médecin malgré lui*, bearing the title of "The Mock Doctor," was first produced in 1732. In a later play, *M. de Pourceaugnac*, Molière gibed at the physicians, and there can be little doubt that he suffered much at their hands during his long illness. The physicians and apothecaries of the day could not forgive Molière his bludgeon blows; but in exposing humbug and formalism he was a true friend of medicine, and medicine will join with the other arts in celebrating the tercentenary of the great French dramatist. Paris this week is paying tribute to his genius. In London lectures on Molière's life, work, and times, are being given at the French Institute in Cromwell Gardens, and performances of his plays will be given on the afternoons of January 20th, February 3rd, and March 3rd; while on January 26th M. Antoine will come from Paris to London to lecture on Molière and his dramatic successors in France.

REPRESENTATION OF THE UNIVERSITY OF LONDON.

WE announced a couple of months ago that Sir Philip Magnus, who has represented the University of London in the House of Commons since 1906, did not, owing to advancing years, intend to offer himself for re-election. For the vacancy which will thus be created at the general election it is probable that several candidates will come forward. Sir Sydney Russell-Wells, M.D., vice-chancellor of the university, has accepted the invitation of the Conservative Association to stand in the Conservative and Unionist interest. As the vice-chancellor is returning officer it will, we presume, be necessary for Sir Sydney Russell-Wells to resign his present office before becoming a candidate. It is probable that there will be a Liberal candidate, and we understand that the University Liberal Association has several names under consideration. It is stated that the Labour party will also put forward a candidate—probably Dr. Sophia Jevons.

VERNACULAR MEDICAL TERMS.

THE vernacular and the dialects of the British Isles are full of interesting words which have been used for centuries to express conditions of disease or of health, parts of the body and phases of the mind, and many other matters which are more or less medical in their meaning and relationships. Many of them are worthy of more attention than they commonly receive from the medical profession. Quite apart from their etymological, philological, and historical interest, they should have an attraction for the doctor because they are the words his patient often uses to describe his symptoms, to insinuate a causation, to express his fears, to voice an improvement, and, occasionally, to suggest a homely course of treatment. It is, for this reason, not below the medical man's dignity to endeavour to acquire some knowledge of the dialectal medical terms and phrases in common employment in the district in which his practice is situated, and to do so becomes almost a necessity if this district happen to be one far removed from where he himself was brought up. A wholly extra-academic and post-graduate course of language study is thus sometimes imposed upon the recently qualified man, not a little to his personal inconvenience until he is able to follow his patient in the details with which he or she is furnishing him in a hitherto unknown tongue; for he finds that his ignorance of the vernacular or the dialect places him at a disadvantage, his patient unfairly enough but with apparent logicality arguing that, if the doctor does not know so much as he (the patient) knows of the name of the disorder, the chances of his being capable of curing it will be small indeed. The doctor who, in certain parts of England, does not know that "the Vipers" there means chorea, or who, in Scotland, has not grasped the fact that "the rose" is a name for erysipelas, will find himself astray in his thinking and be caught considering snakes when he ought to be looking for muscular twitchings or meditating in a pergola when he should be looking at the skin at the sides of his patient's nose. But quite apart from this somewhat utilitarian reason for an insight into medicine in the vernacular and in the dialect there is the fact that now and again through the common word one can obtain a peep into the past history of medicine in this country, and can reconstruct in a measure old systems of treatment, refurnish the apothecary his shop with simples, and envisage the sick chamber or the lying-in room of the Middle Ages and the centuries immediately following them. For these and for such other reasons—etymological, lexicological, and philological—as may easily be imagined and will

in proper course appear, a beginning is made in this week's JOURNAL with the first of a series of articles on medical terms such as the common people use, and on the expressions and phrases, and even proverbs, in which these terms are embedded in daily speech. "Agnail" has been chosen for a subject on account of its curiously diverse forms, its changing meanings, and its strangely involved derivation; the facts have not been lost sight of that a hangnail (to give it one of its many other forms) on the finger of the best surgeon may embarrass his operation, and that its presence on the hand of a member of the staff of a venereal diseases department may introduce the danger of infection. Roger L'Estrange has put it on record that "the Ripping of a Hangnail is sufficient to Dispatch us." And this no doubt is literally true, and for no one more true than the surgeon.

GASEOUS DISTENSION OF THE SPLENIC FLEXURE.

ALTHOUGH Dr. A. F. Hurst[1] has pointed out that gas tends to accumulate more commonly in the splenic flexure than in any other part of the colon, and that patients mistaking it for gastric flatulence attempt to eructate the wind and thereby swallow air and so distend their stomachs, the subject has attracted very little attention in this country. It may therefore be worth while to refer to a recent study of this condition by Ramond and Borrien[2] of the Hôpital St. Antoine, Paris, illustrated by skiagrams. Their contention is that as the splenic flexure is the highest part of the colon gas tends to collect there, and that it may be derived from air swallowed and passed on; they found, indeed, that aerophagy and distension of the splenic flexure are often associated; this condition of the splenic flexure may be transient, but tends to become persistent. It may be independent of aerophagy and due to intestinal fermentation and putrefaction; or may be favoured by idiopathic dilatation of the colon, by kinks, adhesions, the pressure of tumours from without, by paralysis of the left leaflet of the diaphragm due to pleurisy, and by atony caused by peritonitis. The distension of the splenic flexure may spread into the transverse colon as far as the middle line and to a more marked extent into the descending colon—namely, as far as the sigmoid flexure, but the distension always reaches its acme at the splenic flexure. The lower part of the left chest is asymmetrically prominent, tympanitic, and shows deficient respiratory movement and breath sounds. By skiagraphy it is seen that the left half of the diaphragm is displaced upwards for two or three finger-breadths by a clear, irregularly oval or circular area corresponding to the position of the splenic flexure; frequently the stomach is also distended with air, and then the two distended viscera can be distinguished. After a bismuth meal the splenic flexure shows a lining only along its inferior border, but a bismuth enema completely fills it up. In two cases the heart was completely displaced to the right. When the observer is on the look-out for the condition, the symptoms are highly suggestive; there is persistent feeling of distension, dyspnoea is caused by slight exertion, tachycardia and palpitation are constant, and constipation is the rule. The physical signs may even suggest a left-sided pneumothorax. Medical treatment consists in combating constipation, abdominal massage, and the use of electricity. When these measures fail entirely and the symptoms are severe, partial colectomy has been performed; in one instance the cure was brilliant, but in another cardiac failure caused death two days later.

[1] *Constipation and Allied Intestinal Disorders.* 1919.
[2] *Arch. des mal. de l'apparat. digest.*, Paris, 1921, ix, 313-318.

ALKAPTONURIA.

ALKAPTONURIA is the term applied to the presence in the urine of homogentisic acid, a body by which Fehling's solution is reduced. Though a harmless condition it may when detected at a life insurance examination, cause rejection on the erroneous diagnosis of diabetes. It is a rare condition, but of great scientific interest, as it is one of the best known of what Sir Archibald Garrod has happily called chemical malformations or inborn errors of metabolism. Other members of this group are cystinuria, pentosuria, and albinism, in which the power of forming melanin is absent. Professor Campbell Howard and Dr. R. B. Gibson[1] of Iowa, in reporting a new case with a study of its metabolism, point out that there are only about 70 published cases, 11 of these being American. Though familial it is not hereditary, and its incidence resembles that of albinism. There is a failure to complete the katabolism of the aromatic fractions of the proteins tyrosine and phenylalanine, both from the food and the tissues, the process stopping at homogentisic acid, which is accordingly passed in the urine. In 1914 Gross found that the serum of normal animals and man destroys homogentisic acid, probably producing acetone, by means of an active enzyme which appears to be absent in alkaptonurics. The urine when passed is natural in colour, but from oxidation rapidly darkens, especially when the reaction is alkaline; this, indeed, gave rise to the bilingual name alkapton (from alkali and $\kappa\acute{\alpha}\pi\tau\omega$ = I gulp down), originally applied by Boedeker in 1861 to the reducing substance identified thirty years later by Wolkow and Baumann as homogentisic acid. Out of the 70 cases 24 (up to 1919) showed the inky black staining of the cartilages and fibrous tissues which Virchow called ochronosis; this may be attended by pain, swelling, and deformity of the joints. Ochronosis is not due solely to alkaptonuria, but has been found to result from chronic absorption of carbolic acid. In 1912, in a note on ochronosis associated with carboluria, Drs. A. P. Beddard and Plumtre stated that out of 30 reported cases of ochronosis 14 were associated with alkaptonuria and 9 with the use of carbolic acid, the chemical process by which this pigment is derived from these two acids being on the same lines. The appearance of patients with ochronosis is very remarkable, the pigmented cartilages, especially of the nose and ears, showing through the skin, which may also be black; the black pigmentation due to absorption of carbolic acid diminishes when the supply is cut off.

[1] *Arch. Int. Med.*, Chicago, 1921, xxviii, 632-637.

ASYLUM ADMINISTRATION.

THE Minister of Health has appointed a committee, consisting of Sir Cyril Cobb (chairman), Dr. R. Percy Smith, and Dr. Bedford Pierce, with Mr. P. Barter, of the Ministry of Health, as secretary, "to investigate and report on the charges made by Dr. Lomax in his book (*The Experiences of an Asylum Doctor*), and to make recommendations as to any medical or administrative improvements which may be necessary and practicable in respect of the matters referred to by Dr. Lomax without amendment of the existing lunacy laws." A review of this book appeared in our issue of August 20th, 1921, p. 288. The committee will ordinarily hear evidence in public, and the time and place of meetings for this purpose will be announced; the committee will, however, reserve the right to hear evidence in private in any case where they consider such a course desirable. It is particularly stated that the committee will hear such evidence as is necessary for the investigation specified in the terms of reference, but that it cannot undertake to hear evidence in regard to the amendment of the existing lunacy laws.

AT the Church Congress at Birmingham in October last Lord Dawson of Penn made a speech, by invitation, on sexual relationships. It was reported in a condensed form in some of the newspapers, and has now been issued by Messrs. Nisbet as a pamphlet, for which Lord Dawson has written a foreword. Its price is 1s., and it can be obtained through any bookseller. We hope to refer to the pamphlet more at length on some future occasion.

PROFESSOR G. ELLIOT SMITH, F.R.S., will give a short address on the Rhodesian skull at the next social evening of the Royal Society of Medicine. The meeting will be held on January 25th, when Fellows and their friends will be received by the President and Lady Bland-Sutton at 8.30 p.m. The address will be given at 9 p.m.

THE WORK OF THE MEDICAL RESEARCH COUNCIL, 1920-21.

[FIRST NOTICE.]

THE Report of the Medical Research Council for 1920–21 may conveniently be regarded as consisting of two main parts: the one descriptive of the National Institute of Medical Research at Hampstead and the work done there, including investigations in experimental medicine and research work in certain clinical units which may be regarded as related to it; and the other giving an account of research schemes in specific subjects carried out at many different places. Of the fund at the disposal of the Council the larger part is expended under the second head, but the advantages of possessing a central institution have again been demonstrated. At Hampstead there are three experimental departments, but the work done in any one department frequently comes into contact with that being carried on in another, and one advantage of centralization is that the indications for future researches arising at these points of contact can at once be discussed between the workers in the several departments and general plans for further researches settled. The Institute also has the advantage of working in co-operation with the Lister Institute of Preventive Medicine.

As has been implied above, the work of the various departments overlaps here and there, but the following may be taken as a general indication of the matters which have chiefly interested each. The period under review, it should be noted, is the first full year of the Institute, which previously had been scattered in temporary quarters.

The Proteins of Bacilli.

An example of combined effort by two departments is afforded by a research conducted by Captain S. R. Douglas, Director of the Bacteriological Department, and Dr. Dudley, of the Department of Biochemistry and Pharmacology. Captain Douglas has continued his preparation of large quantities of the bacilli causing typhoid fever and tuberculosis respectively, for the purposes of an analysis of their proteins and other constituents; Dr. Dudley has continued his work on the intimate molecular structure of different proteins. For this purpose he has been able to use the bacteria, prepared in large quantities by Captain Douglas and carefully freed from their lipoid constituents, for the preparation and estimation of the constituent amino-acids of the proteins, and for the application of Dakin's racemization method. This is work of a kind for which bacteriologists and pathologists have waited long, and it is satisfactory to know that good progress has been made in devising methods for the separation of the organisms in each case from the culture media.

Ventilation and Microbes.

Captain Douglas, working this time with Dr. Leonard Hill, Director of the Department of Applied Physiology, has continued investigations of the effects of ventilation and humidity on the air in a room or vessel massively infected by spraying with emulsions of micro-organisms. Humidity was found to make little difference to the rate at which the organisms settled out of the air, but it was ascertained that in a moist air the organisms condensed more rapidly on cold surfaces than on warm ones. It was ascertained, too, that dry air passed over organisms growing on the surface of an agar medium carried away many fewer than moist air; the presence of dust in the air also increased the number carried away. Efficient ventilation enormously increased the rapidity with which organisms were removed from the air of an infected room, and even keeping the air in motion with a fan had the same effect. Saturation of the air with moisture increased the results of movement.

Preservation of Antigen.

Researches commenced in 1916 into the antigenic properties of bacteria extracted with acetone and kept in a dry state have been resumed by Captain Douglas and Dr. A. Fleming; it appears that the antigenic properties of bacteria can, by this method, be retained indefinitely, and that bacteria so prepared are very suitable for the subsequent preparation of vaccines or for use in complement fixation tests.

Actinomycosis.

Further inquiries by Dr. Colebrook into the bacteriology of cases of human actinomycosis showed the value of adequate drainage, combined with vaccine therapy, in the treatment of the disease. Potassium iodide was not found to be effective. The need for the better differentiation of the diseases caused by actinomycosis and by allied organisms is noted.

Diphtheria.

With the assistance of Dr. R. A. O'Brien and his colleagues at the Wellcome Physiological Laboratories Dr. Colebrook has been able to follow the method of measuring the approximate strength of diphtheria antitoxin by means of skin reactions, and in this way has been aided in the study of the Schick test for the susceptibility of individuals to diphtheria, an account of which was given in our columns recently (December 10th, p. 994) founded on a report made to the Ministry of Health. It is hoped shortly to make a series of trials of the method, the underlying principle of which is the subcutaneous injection of a mixture of toxin and antitoxin.

Silica.

Dr. Gye, who has been working at tetanus serum with Dr. E. H. Kettle at St. Mary's Hospital, has investigated the nature of passive immunity against tetanus, with a view more particularly to finding how far the antiserum protects against infection with *B. tetani* as distinct from tetanus toxin. It was found that infection could not be produced by the injection of an ordinary culture of the bacillus, which is apparently unable to multiply in the normal tissues. To cause infection, with multiplication of the bacilli and development of the spores, the local defence of the tissues must be broken down by some such agents as ionizable calcium salts or colloidal silica. It was found that the prophylactic power of antitoxin serum, even in relatively enormous doses, was nullified or greatly impaired by the presence of calcium chloride or of silicic acid. It would appear, therefore, that active and passive immunity must be combined to give complete protection. Dr. Kettle and Dr. Gye have also investigated silicosis. It was known from the work of Haldane, Collis, and others that finely divided silica dust produced extensive fibrosis of the lungs; it has now been ascertained that hypodermic injection of both silicic acid and silica causes a lesion which ends in the production of fibroblasts. It is probable that the fibrosis of the lungs is caused by the silica in the tissues becoming hydrated and forming soluble colloidal silica which produces the damage culminating in fibrosis.

Protistology.

Much of the work done by Mr. Clifford Dobell, F.R.S., on the intestinal protozoa in man has been published in one of the Council's special reports and Mr. Dobell's book on the subject. Suffice it to say that there is now little doubt that about 50 per cent. of the population are infected with *Entamoeba coli*, which can gain admission to the human body only from faecal contamination of food; this indicates that in spite of the great modern improvement in sanitation there must be much negligence in the handling of foodstuffs. The need for greater care, both in commerce and in the household, is therefore urgent. It has also been ascertained that between 5 and 10 per cent. of people who have never been out of the country are infected with *Entamoeba histolytica*. This fact, taken with the known rarity of amoebic dysentery here, shows that over and above the infection with the amoeba some unknown causative factor is necessary before dysenteric symptoms can be produced in man.

Anaphylaxis.

Dr. Dale has had the assistance of Dr. C. H. Kellaway (Foulerton Student of the Royal Society) in resuming his study of anaphylaxis, interrupted during the war. Their results provide fresh evidence in favour of the view that the condition of anaphylaxis differs from that of immunity in the predominant location of an antibody in the body cells, immunity being due to excess of the same antibody in the blood cells and body fluids. Their experiments make untenable the view that "anaphylatoxin" is produced in anaphylactic shock, or that its formation has any direct bearing on the phenomena of true anaphylaxis.

Cinchona Derivatives: Digitalis.

A committee on cinchona derivatives and malaria has been appointed, with Dr. H. H. Dale as chairman, and Major H. W. Acton, I.M.S., Dr. Andrew Balfour, and Lieut.-Colonel S. P.

James, late I.M.S., as members. With the help of the Ministry of Pensions, arrangements have been made to distribute supplies of pure salts of quinine and quinidine for comparison of their effects in treating benign tertian malaria. Owing to the scarcity of cases progress is slow. Reference is made to the observations of Sir Thomas Lewis and his colleagues, reported in the BRITISH MEDICAL JOURNAL of October 1st, 1921, p. 514, on the power of quinidine to suppress auricular fibrillation in a certain proportion of cases; they were carried out in the Council's Department of Clinical Research, and the Cardiographic Department of University College Hospital Medical School, and form part of the researches directed to elucidate the nature of auricular flutter and auricular fibrillation. In the same department a series of experiments have been made upon the action of certain standard preparations of digitalis, with a view to determining the relative strengths of these preparations when used therapeutically. The preparations were supplied by the National Institute for Medical Research, and were part of the result of an inquiry by Dr. Burn into the methods of assaying digitalis. He found a wide discrepancy between those obtained by the different methods, the ratio of activity between two tinctures assayed by one method being inverted when the same tinctures were assayed by another.

Pituitary.

Dr. Dale and Dr. Burn have examined the methods advocated for the standardization of extracts of the posterior lobe of the pituitary body. Experience has so far shown that the sensitiveness of the plain muscle of the guinea-pig's uterus to the pituitary extract on the one hand, and to the proposed stable standards (histamine or potassium chloride) on the other, varies independently. Attention is therefore being directed to obtaining a stable standard preparation of the pituitary active principles themselves.

Anaesthesia.

Dr. Leonard Hill and Dr. Dale have sought to obtain an improvement in the anaesthetic action of mixtures of nitrous oxide and oxygen, which is effected by giving the mixture from a flexible bag in a chamber under a small positive pressure. The possibility of producing deep and long continued anaesthesia in this way was demonstrated in 1878 by Paul Bert, but the occurrence of an accident, of which details are not available, appears to have prevented the adoption of this method for producing anaesthesia in man. Recent experience has made increasingly clear the harmlessness of nitrous oxide and oxygen, as compared with chloroform or ether, in cases in which toxaemia is present. Dr. Hill and Dr. Dale have revived Bert's observations, and, making use of the steel pressure-chamber at the Lister Institute, have shown the possibility of producing deep anaesthesia without cyanosis under conditions which, given a suitable pressure-chamber fitted as an operating theatre, could be applied to the human patient.

Kata-thermometer.

The investigations carried out by Dr. Hill, Director of the Department of Applied Physiology, and his colleagues, fall under two main headings—namely, practical questions of ventilation, and researches into the chemical changes of the body under various conditions of environment. The kata-thermometer devised some years ago by Dr. Hill, and described by him in our columns, has been used extensively in factories and mills by investigators of the Industrial Fatigue Board, by Dr. Chalmers, chief medical officer of health in Glasgow, for the estimation of ventilation in post office buildings, and by Dr. Orenstein and Mr. H. J. Ireland in South African mines. The important conclusion has been drawn that efficiency is lessened by as much as 50 per cent. when the kata-thermometer readings are lowest. Formulae for use in interpreting the kata-thermometer readings have been worked out for varying rates of wind; the movements of air in all conditions of ventilation can now easily be ascertained, and it may soon be possible to establish standards of movements of air, cooling power, and evaporation, for mines, workshops, public conveyances, eating houses, and other crowded places. An electrically heated kata-thermometer has been devised, and a modification of the instrument can be used for regulating the temperature of a current of air.

Local Heating and Cooling.

Some curious results have been obtained from a study of the effects of local heating and cooling of the body, carried out by Dr. Hill, Miss Ash, and Dr. Argyll Campbell. It appears that when the hands are placed as far as the wrists in water at 5–10° C. the whole body loses as much heat as is normally produced in the resting condition. Conversely, when the hands are immersed in water at, say, 44° C., the body gains almost as much heat as it loses normally. Since this indicates that local heating of the body may be very efficacious it is just possible that it may be found to be the best method of distributing heat in some workshops and elsewhere, each individual having an electrical heating appliance beneath his clothes and under his own control, while the whole shop is freely ventilated by cool air.

Oxygen Bed-tent.

Dr. Hill, with the help of Mr. R. H. Davis and Mr. Rosslyn, has constructed an oxygen bed-tent which encloses the upper part of the bed and allows the patient to breathe comfortably an atmosphere containing about 40 per cent. of oxygen. There is a fan for circulating the air and an absorber for the exhaled carbon dioxide. The tent has been used at the Ducane Hospital in collaboration with Mr. J. E. H. Roberts for the treatment of oedema and chronic ulcers following gunshot injury to the blood vessels of the leg, and at the Hampstead Infirmary for the treatment of chronic ulcers, with benefit in all cases. It is thought that the tent will be useful also in the treatment of pneumonia and surgical shock.

Statistics.

In the Department of Statistics, of which Dr. John Brownlee is director, Dr. Matthew Young, who has been investigating the geographical distribution of rheumatic fever, reports that there is a definite association between excessive prevalence of rheumatic fever and an excess in rainfall with a low mean annual temperature; the existence of this association has been denied. Dr. Young has also investigated the distribution of cancer in the Severn Valley; the results so far go to show that while there is considerable actual variation in the mortality in the several districts of the region there is no conclusive evidence in favour of the alleged association of an excessive death rate from cancer with low-lying areas or of a small mortality with high-lying areas and with the older geological formations. The inquiry seems also to indicate that the association between excessive incidence of cancer and pronounced industrialism is neither so direct nor so specific as has recently been asserted.

Research Work of Clinical Units.

Reference has already been made to the research work done at University College Hospital by Sir Thomas Lewis and his colleagues. Dr. J. W. McNee, assistant in the Medical Unit, has continued his experimental work on disorders of liver function. At the London Hospital two assistants of the Medical Unit have received grants. Dr. A. W. Ellison and Miss M. Leck have obtained evidence which confirms d'Herelle's theory as to the presence in the faeces of patients convalescent from dysentery of a filterable agent capable of destroying the dysentery bacillus of Shiga. A similar substance has been obtained from patients suffering from other conditions. It is found not to be specific; it destroys also *B. typhosus* and other organisms. At St. Thomas's Hospital Professor Hugh MacLean, Director of the Medical Unit, has continued his investigations on nephritis. Part-time grants have been made to Dr. S. C. Dyke, pathologist to the Surgical Unit, and to Dr. P. C. Brett. Dr. Dyke has been seeking to correlate the microscopical changes found in diseased kidneys and the functional changes ascertained by biochemical means during life. Dr. Brett has done some research work on renal disease and on carbohydrate metabolism, but much of his time has been taken up in the examination by modern scientific methods, for the Ministry of Pensions in the London region, of more than 10,000 patients who were at one time the victims of trench nephritis. It is believed that if this investigation can be continued for a few years valuable results will be obtained.

Finance.

The grant in aid at the disposal of the Medical Research Council was nominally increased for the year 1920–21 by £5,000, making a total of £130,000. This increase was, however, coupled with the condition that no additional provision should be made by way of a supplementary grant or from the funds of any other department for the work of the Industrial Fatigue Research Board, and that the provision hitherto made for research work into mental disorders

under the direction of the Board of Control for England and Wales or the corresponding authority in Scotland should be discontinued and the work transferred to the Medical Research Council. The annual sum available in former years for mental disorders was £2,300. In the previous year the work of the Industrial Fatigue Research Board cost £18,000; towards this the Department of Industrial and Scientific Research made a grant of £8,000 and the Medical Research Council £10,000, of which £5,000 was from a special supplementary grant voted by Parliament. The Medical Research Council was thus called upon in the past financial year to meet additional claims under these heads amounting to £15,300, towards which it would receive £5,000. The administrative expenditure of the Council has never been permitted to exceed 6 per cent. of the annual expenditure; the expenditure of the National Institute for Medical Research at Hampstead had already been reduced, by economies and rearrangements, by some £4,000 a year. In the face of this position the Industrial Fatigue Research Board and the arrangements for its work have been remodelled, and many of the investigations already in hand and more in immediate prospect have been sacrificed. Every effort, however, will be made to maintain the continuity of the work of the Board, which has already earned the goodwill, both of the employer and employed, in many industries. It was not found possible to make any material reduction in the cost of the research work of the Board of Control, but some economies have been effected.

The volume and variety of the work supported by the Council has greatly increased since its beginning, and the increase in the grants received by the Council has borne no direct relation to the greatly advanced cost of each unit of work in an expanded programme. The remuneration of the workers has been increased, though to an inadequate extent, to meet the higher cost of living, and decreased as that has fallen. The rise in the cost of materials and apparatus has in most instances been of a far higher order than the rise in the price of food, and has not, it is stated, declined in anything like the same ratio. The total amount available, £130,000, was allocated as follows: To the National Institute for Medical Research, £38,000, to research in specific subjects (including mental disorders) at universities and other centres, to research in clinical medicine and to the Industrial Fatigue Research Board, £84,000, and to administration £8,000.

England and Wales.

TUBERCULOSIS IN WALES.

A CIRCULAR has been issued by the Welsh Board of Health to local authorities and medical officers of health in Wales with reference to certain details of the campaign for the prevention of tuberculosis. A form has been drawn up for the purpose of giving information as to persons who have been in contact with a patient suffering from tuberculosis, in order to ensure their systematic and prompt examination by the tuberculosis physicians; the form also provides for information as to the environmental conditions under which a patient is living. It is recommended that on the receipt of a notification that a person is suffering from tuberculosis the medical officer of health, or another officer of the local authority acting under his instructions, should visit the patient's home in co-operation with the medical practitioner in charge of the case. It is thought that the medical officer of health will be in a position to detect the possible source of infection and thus to lessen the likelihood of its continuance; he can also act with a view to the removal of any insanitary conditions tending to retard the patient's recovery. A leaflet of instructions to persons under treatment for tuberculosis has been prepared by the Welsh National Memorial Association, which is intended to be handed to patients attending at the tuberculosis dispensaries. The association will continue to supply free of charge to patients sputum flasks and bottles and the necessary means for rendering the sputum innocuous. The importance of the medical officer of health keeping the register of tuberculosis notifications up to date is emphasized, and local authorities are reminded that as tuberculosis is an endemic and infectious disease adequate cleansing and disinfection of rooms which have been occupied by patients, and of personal clothing, bedding, etc., should be carried out where the medical officer of health considers these measures to be desirable. Some local authorities appear to have failed to realize this obligation. It is advised that in Wales all cases of persons suffering from tuberculosis should be brought to the notice of the Welsh National Memorial Association at the earliest possible date. In order to secure prompt notification it is suggested that local authorities should circularize the medical practitioners practising in their areas, drawing attention to the value attached to this and to the free utilization of the services of the tuberculosis physicians of the association, so that in any doubtful case a definite diagnosis may be arrived at as soon as possible.

LIVERPOOL MEDICAL INSTITUTION.

A meeting of the Liverpool Medical Institution was held on January 5th, with the President, Dr. J. E. Gemmell, in the chair. Mr. Edgar Stevenson read a note on extraction of cataract in the capsule of the eye lens, and showed lantern slides demonstrating Professor Barraquer's suction operation. Dr. Norman B. Capon read a paper upon intracranial traumata of the newborn. He had found intracranial haemorrhage in 21 per cent. of infants dying shortly after birth; ruptures of the dural septa, usually of the tentorium cerebelli, were present in 25 per cent. As might be expected, these figures were higher in cases of stillbirth; they were 46 and 60 per cent. respectively in his own series. After reviewing the etiology of intracranial injuries he discussed the difficulty of diagnosing the locality of the effused blood. In his own examples of infantile death following difficult labour slightly more than 50 per cent. revealed only a condition of cerebral congestion, for which early lumbar puncture was undoubtedly the appropriate treatment. Dr. A. Robertson Wilson read a paper on the treatment of surgical tuberculosis by sun-cure at Leysin. After a short account of the situation and climate of Leysin and the general arrangements of the clinics, he described the effect of the sun on the patients under treatment, making special reference to the relationship between browning of the skin and the progress of the case, and pointing out that the greater the pigmentation the better was the prospect of success; the relief of pain was also mentioned. He remarked on the excellent physical conditions of the patients he had seen, and especially on the development of muscles previously atrophied and the restoration of movement in affected joints. The treatment of Pott's disease and tuberculosis of the hip- and knee-joints, as carried out by Dr. Rollier, was described in detail, along with the methods for reduction of the deformity and the technique of the "sun bath." The striking successes obtained were illustrated by photographs lent by Dr. Rollier. The treatment of tuberculosis in other bones and joints, of adenitis, genito-urinary tuberculosis, and tuberculous peritonitis, was described, with the satisfactory results which followed. A short account was given of the treatment of convalescent cases and of the work colonies and open-air schools established by Dr. Rollier.

CORONERS' JURIES.

At the conclusion of four inquests concerning deaths due to violent causes, held on December 21st, 1921, Dr. F. J. Waldo, the City Coroner, informed the jury that unless Parliament intervened, the war measure known as the Juries Act, 1918, empowering coroners to hold inquests without a jury, would lapse on February 28th, 1922, and juries would then become necessary again in every case. At present the coroner was prohibited from exercising his discretion to sit without a jury in cases of (*a*) deaths in prison, (*b*) deaths requiring an inquest under an Act other than the Coroners Act, 1887—for example, the Lunacy Act, Children's Act, and the City of London Fire Inquests Act—and (*c*) where the coroner saw reason for summoning a jury, or for suspecting that the deceased had come to his death by murder or manslaughter (not including *felo-de-se*). The present practice of a large majority of coroners, both in London and elsewhere, was to sit without juries in some 92 per cent. of all public inquests; such cases included not only natural, but unnatural, violent deaths and suicides. A few coroners still sat in every case with a jury, while others—like himself—continued to summon juries save only in cases of sudden death in which the cause of death was unknown. These inquests usually resulted, after a *post-mortem* examination, in findings of natural death. Dr. Waldo added that in his courts the great majority of inquests (except those held in Holloway Prison) were upon cases of violent accidental deaths occurring in hospitals; in these the question of conduct and neglect—short of criminal neglect—often arose. In his experience facts, founded on evidence, could best be decided by a jury directed by the coroner, whose duty it was to explain matters connected with the law of the case under consideration. The want of uniformity

brought about by the present war practice of coroners might, to a large extent, be met and corrected by an amendment of the war Act permitting them to sit without a jury only in cases of sudden death in which the cause of death was unknown. Dr. Waldo thought that the confidence of the public would best be guaranteed by the retention of the jury at inquests in all cases at least of death due to violent causes. The presence of a jury added materially to the publicity of the proceedings, which seemed to him one of the most useful features of the coroner's court.

MANCHESTER ROYAL INFIRMARY WAR MEMORIAL.

A war memorial to former residents of Manchester Royal Infirmary has been presented by the medical board to the trustees of the infirmary, and is placed in the main entrance hall. It is a bronze tablet upon which are recorded the names of former house-physicians and house-surgeons who fell, and gives the dates of their resident service in the infirmary and the office they held there. The names are as follows: W. B. Pritchard, E. N. Cunliffe, D. Rodger, C. B. Marshall, W. A. Sneath, H D. Willis, T. W. Martin, S. J. Linzell, G. Maule, K. Atkin.

Scotland.

EDINBURGH ROYAL INFIRMARY.

AT the annual meeting of the Court of Contributors of the Edinburgh Royal Infirmary, Lord Provost Hutchison, who presided, said that the report contained a number of very satisfactory features. When so many similar institutions throughout the country had had to curtail their activities through lack of funds it was a matter for thankfulness that the Edinburgh Royal Infirmary was enabled to continue fully its beneficent operations. The total ordinary income for the year amounted to £118,191, and it was very encouraging to note that in spite of the coal strike the contributions from the employees in the various coalfields had actually increased by £345, the total for the year being £8,660. The League of Subscribers continued to do excellent work, the amount received from that source being over £17,000 an increase of £4,385. The total income for the year had amounted to £133,000, but over £16,000 had been received as a special grant from the National Relief Fund. The excess of ordinary income over ordinary expenditure for the year amounted to £15,136. The sum to be administered under the Astley-Ainslie Trust for the relief of convalescent patients amounted to over £600,000, and substantial benefits would accrue to patients of the Infirmary during convalescence, but the fact must be emphasized that this Trust would give no relief whatever to the financial obligations of the Infirmary. In fact, these obligations would probably be increased, as the existence of the Trust would result in a larger number of acute cases being treated in the Infirmary.

Correspondence.

THE INCIDENCE OF VENEREAL DISEASE.

SIR,—In some of the letters which have recently appeared in the BRITISH MEDICAL JOURNAL on the subject of venereal diseases, statements have incidentally been made as to the prevalence of these diseases and the almost universal habit of promiscuous sexual relations among young adults. There are at the present time a large number of well-meaning people engaged in the campaign against venereal diseases who, for the purpose of their propaganda, regularly exaggerate the incidence of venereal diseases and of immorality.

Several years ago an Austrian syphilologist stated that 95 per cent. of the male population had suffered from gonorrhoea at one time or another. This statement has appeared in various medical and lay books dealing with this subject, and, inferentially, has been applied to Great Britain.

It must be the common experience of all of us who have had charge of lock wards that our "prostitute" patients may be seen plying their calling on the streets in an infectious condition. It is well known to every general practitioner that there is a considerable amount of promiscuity among the young adult population. But while this is so, it is exceedingly ridiculous and most mischievous to exaggerate the occurrence of immorality, as has been done recently. There are certain members of the general public who are only too anxious to have information from the medical profession which may help them to salve their own consciences.

There is, of course, no reliable information as to the prevalence of promiscuity, nor as to the prevalence of venereal diseases. I feel sure that every medical practitioner who has the experience derived from ordinary general practice will agree that the statements recently made are ridiculous.

Further, there is the evidence which can be adduced from illegitimacy statistics, from venereal diseases clinics, and other sources, that the vast majority of the population of this country are free from disease and live decently moral lives. It would in my judgement be a catastrophe if the young population of this country were to be brought up with the idea that everybody adopted some variety of promiscuity, and that therefore no great harm would arise if one lapse were committed.

From the point of view of the national health I am sure that every means should be taken to secure a high moral standard for every man and woman, and that adequate punishment should be meted out to those who depart from such a standard.—I am, etc.,

Birmingham, Jan. 3rd. JOHN ROBERTSON.

TREATMENT OF CARCINOMA OF THE CERVIX.

SIR,—I have read with interest the letter on this subject by Dr. Herbert Spencer. He states "the object of this letter is to plead for the exercise of judgement in the operation to be performed"; and again, "our great need is to get the cases early, so that the dangerous operation, extended abdominal hysterectomy, may be avoided." No one will cavil at the necessity for the "exercise of judgement" or the "great need" "to get the cases early," but surely it is the employment of an extensive operation in the early cases which will yield the best results.

Clinical experience of cancer in all parts of the body serves to confirm the opinion that a thorough and complete operation in the early stages of the disease gives the sufferer the best chance of prolonged alleviation or permanent cure, and that the results so obtained are not equalled by any other method of treatment yet employed. Indeed the necessity for early and complete eradication is an important surgical principle to which cancer in the uterus should be no exception.

Now the mortality of the extended abdominal hysterectomy is high, roughly 20 per cent., and if continued will tend to discredit the operation, but it can be reduced by exhibiting surgical judgement in the selection of cases and by care in the technique of the operation. Any major operations if indiscriminately employed would soon be discredited both by the profession and the laity.

The test of a surgical operation as a therapeutic measure is the ultimate result obtained from that operation under the best possible conditions, and employed in the early stages of the disease for which it is performed. When this test is applied to the extended abdominal hysterectomy for early cases of cervix carcinoma I have no hesitation in stating that the results obtained are not equalled by any other method of treatment known to medical science.

I believe when this operation is employed for the cases in which it is really suitable the mortality is well under 10 per cent. in expert hands; indeed, I have completed 100 cases with 6 deaths.

The estimation of an operability rate which was introduced from Germany is eminently fallacious, and to maintain it at a high level tends to encourage rash and hazardous operations attended by such a high mortality as to discredit surgery. It is easy to say, "So-and-So selects his cases," but to do an extensive operation without eradicating the disease only tends to stimulate the remaining growth, and should the sufferer survive her ultimate condition is worse. Moreover, palliative measures may make a patient comfortable for a considerable period.

The selection of cases suitable for operation requires the highest surgical judgement, and the greatest care should be taken in so doing, otherwise the surgical treatment of cervix carcinoma will be discredited. The dictum "if it is an easy operation it is a good operation" is as true for the extended abdominal hysterectomy as it was for vaginal hysterectomy in the old days.

Concerning the technique of the operation the prevention of infection from the cancer and the prevention of blood loss are two most important factors. My own technique is fully described in the *Transactions of the Obstetrical Society of Edinburgh*, 1911. Finally, I may mention that I have seen recurrence six, seven, and eight years after this operation.—I am, etc.,

London, W., Jan. 7th. F. J. McCANN.

SIR,—British gynaecology is under such great obligation to Messrs. Comyns Berkeley and Bonney for the pioneer work they have done in this country for Wertheim's operation that I sincerely regret any suspicion of slight on their work through a little carelessness on my part. In preparing my lecture for publication I eliminated a mass of statistics, retaining Berkeley and Bonney's almost exclusively for this country, but unfortunately by an oversight retained their earlier statistics. I much regret this, though the difference is not nearly so great as would be imagined from Mr. Comyns Berkeley's letter. The figures I quoted were:

> Mortality, 22.5 per cent.; operability, 67 per cent.; and cure, 26 per cent. for three years;

whereas their later figures in 1916 were:

> Mortality, 20 per cent.; operability, 63.5 per cent.; and cure, 39 per cent. for five years.

The last shows a great improvement, and is the only error of any importance.

Dr. Spencer's plea for vaginal hysterectomy in early cases would have more weight with me if there was any certain method of diagnosing the extent of the growth prior to operation. In my experience abdominal section often reveals the growth to be much more extensive than I had estimated by vaginal examination even under the anaesthetic.—I am, etc.,

Manchester, Jan. 9th. WM. FLETCHER SHAW.

"LOOSE CARTILAGE."

SIR,—In your issue of December 17th Mr. Pennell, under the above title, states that "the treatment is not easy, and the diagnosis is more difficult still," and that "cures are in the minority." I submit that this unsatisfactory state of affairs is largely due to incorrect diagnosis, but to some extent also, as Mr. Pennell states, to faulty technique in operating. Traumatic affections of the knee-joint are lumped under the blessed term "internal derangements of the knee-joint," and the inexperienced surgeon is apt to follow the line of least resistance and remove the internal or external semilunar cartilage as the supposed cause of the disability. I could recount many such cases, but one which has recently come under my notice will suffice to illustrate my point.

An undergraduate injured his knee at football on the last day of the Lent Term. According to his account, the knee swelled up, but he managed to "go down," and was incapacitated for the whole of the Easter vacation. On his return to Cambridge he came to me complaining that the knee frequently "gave way under him, and let him down." On examination I found that there was little or no fluid in the joint, which could be extended to the full. On putting tension on the lateral ligaments in turn, the internal ligament was taut, but the external ligament allowed of considerable separation of the tibia from the external condyle of the femur. There was no history of "locking" of the joint. I diagnosed a ruptured external lateral ligament, and prescribed a Marsh's splint with stops to prevent full extension of the joint, advising him to wear this apparatus for at least six months, gradually diminishing the angle of flexion.

I have previously treabed many cases of torn ligaments on these lines with success. To my mind operative measures have little or no advantage, as after suturing the torn ligament the joint has still to be guarded from full extension for a similar period to allow of firm fibrous union of the ligament taking place.

During the Long Vacation he consulted a surgeon near his home, who, I presume, jumped at the diagnosis of loose internal semilunar cartilage, and advised and removed the supposed offender. The patient came to see me the beginning of this (Michaelmas) term. He informed me of the operation and complained that the knee still frequently gave way. He had, of course, discarded my splint. On examination I observed the operation scar over the inner aspect of the knee. On testing the ligaments as before I found that the external ligament was still loose, but the *internal ligament was also loose*. Thus in the operation for the removal of an inoffensive internal semilunar cartilage the internal lateral ligament had been injured and the condition of the knee rendered worse than before. All I could advise was a continuance of the splint, strapped as before, to prevent extension of the knee for another six months.

It cannot be denied that there are many traumatic conditions of the knee which do not admit of accurate diagnosis as to the exact nature of the injury. But there are certain injuries of the joint which can be diagnosed with certainty, and, if correctly diagnosed, treated with every prospect of satisfactory results being obtained. Briefly, it may be stated that "locking of the joint" is pathognomonic of loose or torn semilunar cartilages, but, on the other hand, absence of a history of locking does not necessarily exclude this condition. In the absence of a history of locking and as a routine practice, the internal and external lateral ligaments should always be tested in turn and compared with the sound side. A torn ligament will be demonstrated by the fact that with the knee fully extended the tibia can be separated from the femur on tension being applied to the injured ligament, a movement which should not obtain if the ligament is taut and intact. These two injuries are produced in two totally different ways. The cartilage is slipped or torn by rotation of the tibia on the femur in a semiflexed position of the joint, whereas a lateral ligament is torn by a lateral bending force on the fully extended knee.

A more accurate knowledge of the anatomy and mechanism of the knee-joint, combined with a careful inquiry into the history of the accident and a methodical examination of the joint on the lines I have stated, would, I submit, considerably reduce the number of unsatisfactory results of operation on "loose cartilage."—I am, etc.,

Cambridge, Dec. 28th, 1921. H. B. RODERICK.

TREATMENT OF GONORRHOEA BY ELECTROLYSIS.

SIR,—The pathology of organic stricture described by Mr. Wyndham Powell is indeed strange reading. He says the superficial layers of epithelium are necrosed and cast off. Because an open ulcer cannot often be seen he misses the fact that their loss is the primary event. The other happenings of cellular renewal, fibrosis and contracture, are really secondary. This disastrous loss of cells is due to localized chemical action, sometimes, perhaps, a bacterial toxin, but much more often due to a caustic. One has only to examine a few hundreds of the discharges from cases which have had those applications to find epithelial cells sometimes in groups to be the dominant cellular factor. These cells have been killed by the chemical applied, and there is a minority of leucocytes—that is, pus cells. This condition is the important feature of films from obstinate cases of gleet. This state is initiated by the irritant employed, and is one of the factors which make cases of gonorrhoea chronic.

The benefit which may be obtained by any such procedure is due to the resulting vascular engorgement of the region of the urethral membrane which has endured such a chemical assault. The flow of antibodies is increased with improved phagocytosis of the organisms at work. In my view the price—that is, the damage and necrosis to the part—is much too high for the benefit obtained by the method employed.

In a short account of such a group of cases it is impossible to include such a detail as dilatation or other accessory to treatment. Any cases that needed it were given dilatation, though most of the chronic cases had received all that ordinary methods could provide before I saw them. Although a good dilator is a useful instrument it nearly always makes a greater impression on the patient than on the bacteria.

With regard to rheumatism my facts can afford to stand.

Coming next to posterior urethral invasion Mr. Powell seems to forget the common way in which gonococci can reach the epididymis—namely, by the lymph stream. Quite often there is an epididymitis so early in the infection that the lymph highway must have been the path of arrival of the gonococci. Besides this there is the easy and fairly common happening of some tiny lesion of the membrane by a syringe or other object even at the meatus, with the same result.

Even excluding first attacks I am surprised at the rapidity of Mr. Powell's success in curing gonorrhoea by irrigation. Since the method is one I never use I can only realize the contrast of his claim with the time other workers usually claim in lectures or in published work.

I may perhaps remind Mr. Powell of a valuable paper on the routine treatment of gonorrhoea published during the war. The medical officers in charge of a large number of patients wondered whether the routine treatments were any real advantage. Half of the cases volunteered to assist a decision by having no treatment, the other half were treated. The result was that it was better for cases to have treatment, but it was, so to speak, no galloping victory for treatment. The scepticism of those colleagues of ours as to the results to be expected from ordinary treatments is a fair indicator of the truth. I must, however, correct one more error of Mr. Powell in the pathology of gonorrhoea. He speaks of the bactericidal power of flattened epithelial cells which replace those necrosed. Surely the polynuclear leucocyte is the only cell in which any such power has been proved. We also know that this cell must be provided with the suitable opsonin. Have not so many of us insisted on the all-importance of these leucocytes or pus cells, and that they and the valuable antibodies must be preserved and augmented by all possible means? I am tolerably sure that Mr. Powell has never seen the fixed epithelial cells of the part ingesting gonococci or any other bacteria. The poor fighting power of the thickened and whitened membrane which he describes is due to the thickening, to its relative anaemia, and consequently to the hindrance of access of the leucocytes and of the blood antibodies.

Mr. Powell has invented a good urethroscope and has much experience of venereal work clinically. I hope he will come to realize that my methods are based on what I hold to be the true pathology of the malady, and that they are essentially more conservative than the ordinary ones. I do not, of course, forget that all of us owe so much of our knowledge of phagocytosis and of Nature's conquest over infecting organisms to the fine work of Metchnikoff, Cohnheim, Waller, and of Wright and others, not forgetting Leduc, Lewis-Jones, and Sloan.

New ideas which lead to new methods in any sphere of work are of no use unless the immediate and ultimate results are really better.—I am, etc.,

London, W., Jan. 7th. CHARLES RUSS, M.B., M.R.C.S.

SIR,—I see a statement by Mr. Powell in the JOURNAL of January 7th (p. 37), that he has treated a large number of cases of gonorrhoea without meeting with any arthritic complications. Might I mention that one of the worst cases of gonorrhoeal arthritis I have ever seen occurred after my having copiously irrigated the urethra of a patient who had only a forty-eight-hour-old discharge? I used weak permanganate solution. The unfortunate man was attacked within twenty-four hours with acute pain and swelling in his right knee-joint, the other joints in his arms and legs later becoming involved. He resisted all treatment, including vaccines, and has to-day a stiff knee- and ankle-joint. I note lately that at least one important venereal clinic still prescribes the old-fashioned bottles of medicine and lotion for injection.—I am, etc.,

Crewe, Jan. 7th. HOWARD ENGLISH.

DIET AND DEVELOPMENT.

SIR,—In your issue of December 24th you publish a paper by Dr. Harriette Chick and Dr. Elsie Dalyell entitled "Observations on the influence of foods rich in accessory factors in stimulating development in backward children." In a footnote it is described as a report to the Accessory Food Factors Committee appointed jointly by the Lister Institute and the Medical Research Council. Under the circumstances I think it may well be asked how the authors have come to select so misleading a title. The action of the antiscorbutic factor is specific. It stimulates development only in those whose want of development is due to scurvy. It leaves untouched those, a hundred times more commonly met with, whose want of development is due to other causes. The authors recount the improvement which followed in the case of ten children when fruit juice was administered freely and continuously. Nine out of the ten had admittedly suffered from manifest scurvy.

I suggest that a more proper title for the communication would have been "Observations upon the influence of foods rich in accessory factors in stimulating development *in children suffering from scurvy*." The basis of the dietary received by these children before the fruit juice was given was cow's milk "at least three or four days old," which had been "heated at least once before delivery." At present the word vitamin is one to conjure with. The most indiscriminate hopes and expectations have been aroused. A firm of manufacturers has actually placed upon the market a preparation which claims to possess the property of specifically stimulating the growth energy. There is great need to be careful. Fruit juice will not do anybody any harm. It will cure and it will prevent one thing only—scurvy. Just in the same way thyroid extract will cure one defect of body and of mind, and one only. Yet in practice we are apt to find that almost all mentally defective children, whether the backwardness is due to primary amentia, to birth injury, or to mongolism, have been embarked, with hopes that are sure to be disappointed, upon a course of thyroid therapy. If I were to write a paper recording the improvement of ten cretins upon thyroid extract, I should not call it observations upon the influence of thyroid extract in stimulating development in backward children.—I am, etc.,

London, W., Jan. 8th. H. CHARLES CAMERON.

SUICIDE IN BORDERLAND CASES.

SIR,—A letter from Dr. Phillips appearing in the issue of the BRITISH MEDICAL JOURNAL for December 10th, 1921, quotes with approval the dictum of Professor G. Robertson of Morningside that "every case of melancholia is a potential suicide." One asylum in this country boasts the proud distinction of never having had a suicide for over thirty years—that is, that all patients who were in the least depressed were watched with such stern vigilance that not the slightest loophole for mischance was given. But so eminent an authority as Dr. Bedford Pierce has placed on record that he cannot regard this as a healthy sign.

What of the great majority of patients subjected unnecessarily to such a rigid regimen? The success of treatment is to be measured by recoveries, not by a drastic system of repression. The mistake lies in not recognizing the natural causes of depression. A mind harassed and worried by the slings and arrows of ill luck, a nature naturally buoyant worn out by long attendance upon others, a heart bereft of joy through sudden shock and loss—such things are happening constantly in the everyday life of mortals. Are the sufferers, in addition to their troubles, to be subjected to the scourge of constant supervision and the ignominy of being "cabin'd, cribb'd, confin'd" by cast-iron regulations such as would crush the vitality out of anyone—not to speak of the disgrace with which such a situation is regarded by the outer world? A person who has once attempted in ever so foolish and fruitless a manner to put an end to himself is doomed to a fate more dreaded often than death. Many a one has been committed to an asylum on account of depression due to altogether natural causes; the depression is thereby intensified a hundredfold, and they are kept there because depression still continues. What proceeding could be more irrational? The real cure is to change the conditions. Once this is effected the desire to live will most likely reassert itself and life will again become worth living.

Nothing is more conducive to suicide than the dread of the asylum. No one ought to be subjected to the soul-destroying vacancy and suppression which therein prevail except patients for whom such measures have become an absolute necessity. The very methods in vogue suggest to those imprisoned the frantic desire to snap the fetters at all costs, and get free. This is natural. Suicide is in most cases no proof of aberration (*pace* the far too frequently repeated verdict, "suicide while insane"). The legal standpoint from which such occurrences are viewed is gradually undergoing a change. It is coming to be recognized that suicide arises often from the clearness of vision which sees before it a vista of coming woe, which estimates in sharp outline the long dreary stretch of life ahead, bereft of strength or hope. Not infrequently the worst cases of suicide arise from the firm conviction in the unclouded mind that it would be better for others were the sufferer dead. In many countries suicide has been regarded as an heroic act. While a high death rate is looked upon without too much concern in our asylums, the dark hand of Fate is stretched relentlessly over the living.

The remedy for this misguided state of things requires no legislation. It does not lie in instituting antechambers or annexes to asylums, where the inmates are inducted under lunacy control, without any of the safeguards afforded by legal certification (as was proposed in the mental clause recently inserted in an ill-fated health bill, and still commended by the late Minister of Health).

This mental clause was a distinctly retrograde step. The antechambers were intended to become "feeders" to asylums,

whereas the real path of hope lies in the direction of emptying the asylums, and reducing the enormous sum of £6,000,000 a year spent in their upkeep. At a cost of one-sixtieth part of this hugh expenditure the experiment might be tried of starting appropriate and cheerful sanatoriums or hostels for those whom there is no necessity to imprison. These could be run on a hospital footing, and apart from lunacy, so that no stigma or depressing atmosphere need attach to them. No legislative barrier stands in the way of the provision of hospitals free from detention for such as do not need to be certified. It would be a great boon to doctors to have places of this kind to which to recommend their patients in the earliest stages. Such a common-sense measure of expediency would prove itself in a short time and in very many cases a sure and certain preventive of insanity.—I am, etc.,

London, E., Jan. 7th. S. E. WHITE, M.B., B.Sc.Lond.

HOSPITALS IN THE TERRITORIAL FORCE.

SIR,—As another late Captain R.A.M.C.(T.F.) *à la suite* from September, 1908, I am reading the correspondence in the JOURNAL on "Hospitals in the Territorial Force" with much interest.

From personal observation in three general hospitals at home and in four general hospitals and one special hospital in France, it seemed to me that those who had been keenest on their professional work at some time or another in their previous career—medical, surgical, or sanitary—made the best administrators, whether they were Regulars or otherwise. Though nominally attached to the home Territorial unit in this large town, where at one time during the war there were said to be more than sixty institutions of a medical kind for the sick and wounded, the difficulty I found was to get any local job at all, either general or special. Subsequently, when sent from France on sick leave, I applied on two occasions for local employment near my own home and practice, and was forthwith incontinently bundled off to another town about 100 miles away, on the home pay of a Territorial captain, R.A.M.C.

On the other hand, I never had any difficulty in getting to the more interesting life and unlimited opportunities for general and special work at the base overseas by volunteering direct to the War Office, with and without the permission of my O.C. for the time being. But, unless one is *persona grata* to the local administrative, much valuable time may be lost in getting overseas, while no work is guaranteed near one's home.

In this country it seemed to me ridiculous for part-time medical officers to go about in R.A.M.C. uniform. In London and Southampton many medical men attached to large hospitals had the good sense not to do so.

As regards decorations and promotion, I have no doubt we all get some of what we think we deserve; personally it is an abiding source of gratification to me that out of my twelve commanding officers I made no less than three "sit up." In other words, the distinction one just misses is most thought of; but consolation lies in having tried to do one's best.—I am, etc.,

WILLIAM COTTON, M.D., D.P.H.,

Bristol, Jan. 7th. M.O., H.M.Prison, Bristol.

HOSPITAL POLICY.

SIR,—Dr. Hawthorne attempts, in his letter which appears in your issue of January 7th, with not a little literary persiflage, to castigate me for the definition of a voluntary hospital given in my letter appearing in your issue of December 24th, 1921. He more than hints that the definition is not one which I, as Chairman of the Hospitals Committee of the Association, am authorized to hold up for public instruction, but that it is my own personal view which I am attempting to foist on your readers under cover of a little brief authority.

True, the definition is my own in the sense that I agree with it; but it is the definition of the Representative Body of the Association. At the Newcastle meeting a special resolution was passed dealing with paragraph 50 of the Cave Report, and stating: "That this meeting disagrees with paragraph 50 of the Report of the Government Committee on Voluntary Hospitals, and maintains that the essence of the voluntary hospital system is the independent and voluntary management, and that this is in no way related to the conditions of service of the medical staff." (Minute 239.) Dr. Hawthorne's assumption of ignorance of the source of the definition is not without a touch of humour, for he himself was present when that resolution was passed. The report of the meeting shows that Dr. Hawthorne made no protest, yet he could scarcely have been stricken with breathlessness at the novelty and audacity of that definition, for it was enunciated by inference at the Conference of Hospital Staffs held in December, 1920, which in the first resolution passed stressed "the voluntary method of administration of the voluntary hospitals" as the feature which "should be maintained." I can only think that at the moment when Resolution 239 was passed Dr. Hawthorne was suffering the shock of the loss, a few minutes earlier, of a wrecking amendment to the "Leicester" resolution, which amendment he had supported with an eloquence that was vastly relished, albeit it was wholly unavailing in its plea.

The second part of Dr. Hawthorne's letter is an exposition of his own views of what a definition of a voluntary hospital should be. He bases it upon a historical sketch, which I admit is accurate so far as the past, but cannot accept as true of the present. Instead of one single defining principle of the voluntary hospital Dr. Hawthorne prefers the support of three—"gratuitous management," "gratuitous professional services," and "gratuitous contributions." Since he demands so many as three legs for his support, I wonder he was not bold enough to require a fourth—gratuitous nursing—for surely a four-legged table is a rock of stability compared with a tripod. But consider his three. Since he does not discriminate between them we may take it that each is severally and jointly necessary to the existence of a voluntary hospital, and that the loss of one of them would mean the loss and extinction of the voluntary hospital. Such a position is demonstrably untrue. There are voluntary hospitals existing—nay, flourishing—to-day which were originally charities, but whose inmates are now paid for by statutory authorities. One leg of Dr. Hawthorne's tripod is lost, yet the institutions remain "voluntary," and are universally recognized as such. Possibly Dr. Hawthorne would claim that they live on in the odour of the sanctity of their past, or by reason of the sweetening influence of the inheritance of "gratuitous contributions."

When we come to the present I find that Dr. Hawthorne does not appear to have perceived the influence of changed economic and social conditions on the clientèle of voluntary hospitals. Time was when all of these were the indigent poor. To-day we learn "that at no great hospital in the country is the proportion of inmates who could be called indigent poor higher than 20 per cent. The remainder are people able and in many cases willing to pay a part at least of their maintenance."[1] Dr. Hawthorne will, I am sure, agree that these figures indicate a vast improvement in the condition of our people, and one in which all must rejoice. But it suggests, also, that the time may come when it will no longer be true that "the poor ye have always with you," so that according to Dr. Hawthorne's tripod definition the voluntary hospitals are doomed to die, and must give place to some unified system of State hospitals, very logical in their distribution, very complete in their equipment, and very thorough in their work, no doubt; but, alas! how lacking in freedom, elasticity, and in priceless human variation.

I have on y one comment to make on Dr. Garratt's further letter. He is entitled to his view of the "Leicester" resolution and of the staff fund, and to further his view by every legitimate argument. But I maintain that his reiteration of the Cave Committee's "twenty-eight meetings," and the implication that paragraph 50 of the report is the quintessence of those twenty-eight meetings is a method of argument that does not do justice to either the Cave Committee or to Dr. Garratt himself.—I am, etc.,

London, W., Jan. 9th. N. BISHOP HARMAN.

MULTIPLE TOOTH EXTRACTION.

SIR,—Mr. Montague Way is quite justified in his comments in your issue of December 17th last on multiple tooth extraction. In one respect the medical practitioner is not to blame, but his teachers are, who allow him to pass through a long training without being obliged to acquire an elementary knowledge of the most prevalent of all diseases and its conservative treatment.

In another respect, the advocacy of "have all your teeth extracted" may be attributed to the somewhat exaggerated views which are spreading both among the profession and the laity, as to the evils arising from diseases which affect the teeth. For instance, it is rarely necessary to remove all teeth when affected by pyorrhoea alveolaris, and any inflammatory

[1] Gordon Dill, BRITISH MEDICAL JOURNAL, December 31st, 1921, p. 1119.

condition of the gums may be, and often is, mistaken for this somewhat intractable, but by no means incurable, disorder.

That greater care should be exercised by medical practitioners before pronouncing definite decisions is easily proved. I have under treatment a doctor who has taken a fortnight's holiday in order to have all his teeth out, as advised by two of his colleagues. Of course his mouth has been neglected because of arduous duties; but it was only necessary to remove two central incisors, as the cause of his ill health. He not only retains fourteen useful teeth, but he has escaped an amount of misery only known to those who have endured it.

There is an ethical side to this problem, which ought not to be lost sight of. The medical practitioner is in practice to save life, the specialist to save any part of life to which he devotes his attention. As mastication is one of the most important functions of the human body, no dental surgeon of experience will remove teeth unless he is convinced that by so doing he can improve the health of his patient.—I am, etc.,

R. DENISON PEDLEY,
Consulting Dental Surgeon to the Evelina Hospital.

London, S.E., Jan. 7th.

POST-GRADUATE COURSES IN VIENNA.

SIR,—With reference to the letter of Dr. K. P. Wenckebach on post-graduate courses of the medical faculty in Vienna, published in your issue of January 7th, the following facts, which I derived during six months' work in the oto-rhino-laryngological clinics of Vienna from May to November, 1921, may be of interest:

1. Private courses in any subject desired can easily be arranged. The fees generally are 4 dols. an hour, divided among those taking the course.

2. There are two rates of exchange for kronen—the external, quoted on the London Exchange; the internal, quoted on the Vienna Exchange. The internal is roughly 100 per cent. the more favourable to visitors.

3. Of the courses desired, 99 per cent. can be obtained in English, and knowledge of German is not essential, though desirable.

4. The amount of fees received is generally of greater concern than the signing of declarations disapproving of the exclusion of German-speaking doctors from international congresses and medical societies. I met no one who signed such declarations, neither was I asked to do so myself.

5. The American Medical Society was reorganized about June or July, 1921. One of their chief objects was to obtain the reduction of lecture fees. The net result was a general increase.

By no means all the American medical men visiting Vienna last year associated themselves with this society, nor should I recommend any Englishman to do so before acquiring knowledge of the personnel in control at that time.—I am, etc.,

F. DOUGLAS MARSH, F.R.C.S.

Birmingham, Jan. 8th.

BIRTH CONTROL.

SIR,—At the close of his valuable address on "Problems involved in the congress of the sexes in man," Professor Arthur Thomson refers to the use of artificial checks to prevent conception, and says: "As a rule, we cannot interfere with the normal courses of nature without some consequent evil result." Will he say, however, that the result (repression or promiscuity on the one hand, or excessive families on the other) of abstaining from artificial checks is not much more evil? The world's food supply is always increased so slowly that only a very small percentage of couples in the world can get sufficient food for more than three children.—I am, etc.,

B. DUNLOP.

London, S.W., Jan. 9th.

CLAYDEN v. WOOD-HILL.

SIR,—I am sending you the fourth list of subscriptions to the Wood-Hill Fund, and should be much obliged if you would publish it in your next issue. The amount received up to date is just over £800.

I should like specially to direct attention to certain contributions from medical societies, medical staffs of hospitals, etc., which have greatly helped the fund, and which serve as examples of what might be done by similar bodies of practitioners in other localities.

	£	s.	d.
The Kent Branch of the British Medical Association ...	27	10	0
The Staff of the Radcliffe Infirmary, Oxford	21	0	0
The Manchester Medical Committee	21	0	0
The Kesteven Division of the British Medical Association...	13	2	6
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The Colchester Medical Society	5	5	0
The Medical Staff of the Hospital of St. Cross, Rugby ...	3	3	0
The Wrekin Medical Club	3	3	0

If each Division or Branch of the Association would take the matter into consideration, and send to the fund a Divisional or Branch contribution appropriate to its membership, the total sum for which Dr. Wood-Hill has been made responsible as the result of the recent trial—£1,600—would soon be forthcoming.—I am, etc.,

HAMILTON A. BALLANCE,
Honorary Treasurer.

All Saints Green, Norwich, January 9th.

Fourth List of Subscriptions to Fund.

Amount previously acknowledged, £681 1s. 0d.

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Mr. N. E. Waterfield, Port Sudan

£15 15s.
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Kesteven Division of the B.M.A., per Dr. Charles H. D. Robbs, Honorary Secretary, on behalf of the following members (£13 2s. 6d.):

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Obituary.

THE LATE SIR G. S. WOODHEAD.

WE are indebted to Sir James Mackenzie for the following tribute to Sir German Sims Woodhead:—

By the death of Sir G. Sims Woodhead there has passed away a most striking personality in the medical profession. Probably there was no one who had so many devoted and attached friends. He and I were students together and residents in the Edinburgh Infirmary in the years 1878-79, and since that time I have watched with great interest his distinguished career, and have felt it one of my greatest privileges to have been favoured with his friendship. I can only speak of a small portion of his work—indeed, I doubt if any individual is qualified to do more—for his interests were so varied and he threw himself into each project with all his heart. He never spared himself if he could help any deserving cause, and no one can estimate the influence his magnetic presence brought into the widely varied interests in which he participated.

I wonder if anyone has realized the work he has done in tuberculosis. He was early in the field, and others can better describe what he did in the laboratory and by experiment. We had occasion to consult him in connexion with our research work in St. Andrews, and we were not only greatly helped by his advice, but were astounded at the extent of his knowledge. He fully realized the chaotic state of the knowledge of tuberculosis, and recognized that some new conception must be introduced to guide further research, and he looked to the more accurate study of the clinical phenomena as the source of this new conception. But he not only realized this: he himself, though not a clinician, did more than anyone to make clinical observation more accurate and reliable. He recognized that one of the first events that happens to an individual who becomes infected by a microbe is a rise of temperature, and that the temperature varies with the infection. He reasoned that the invasion of the body by the tubercle bacillus would be accompanied by a temperature

peculiar to the infection. The methods in use were totally unsuited to the purpose, and he sought for some other methods. The late Professor Gamgee had devised a method for taking a continuous record of the temperature, but had not quite perfected his instrument when he died. Woodhead adopted Gamgee's method, completed the details, and set about a long series of observations, which resulted in demonstrating the peculiar temperature curve which is caused by an active tuberculous process. The importance of this work of Woodhead's has not been recognized and its significance has not been understood. Apart from its value in recognizing an early stage of tuberculosis, it is the only important advance that has been made in clinical thermometry for over fifty years.

His continued interest in tuberculosis is seen in the establishment of the Papworth Colony for Tuberculosis, for which he was largely responsible. It may be too soon to speak of the success of this undertaking, but no system for the treatment of tuberculosis has been started by one with such a profound knowledge of the disease, and with such a common-sense appreciation of its aims and objects. Into this matter he threw himself with all his energy, though severely crippled by ill health.

There never was a man in our profession more desirous of helping anyone who was anxious to do good work; no one in need ever called on Woodhead in vain if it were in his power to help. Many members of our profession owe him a great debt. He took no credit to himself for anything he did; he was modest even to self-effacement, so that few knew what he had done, either in his own work or in the help he gave to others. I have a vivid recollection of the support he gave me at a time when I needed it sorely. About thirty years ago he mentioned to me that he was starting the *Journal of Pathology*. I told him I had been working for some time getting records of the venous pulse and studying them to find out the mechanism of the irregular heart, but a paper I had written had been refused by two or three medical journals. He at once offered to publish the paper in the first number of his journal. This was done, and a few days after the journal appeared he was accosted by a distinguished professor of one of the English universities, who asked him what he meant by publishing "stuff" from a fellow called Mackenzie, who was only a general practitioner and had no laboratory training. Woodhead replied that he did not know anything about the "stuff," but he was prepared to publish anything Mackenzie would write. His wife used to say of his friends that to Woodhead all his geese were swans, and I am not sure that his having a high opinion of his friends did not stimulate his friends to be worthy of his high opinion. At all events, when he told me of the above incident I felt determined to do my best to merit his opinion of me. I mention this incident merely to illustrate the kind of influence he exerted, and to those he helped he was ever encouraging, yet critical; and this encouragement and criticism, and his store of knowledge, were always at their service.

Then the large-heartedness of the man, his wonderful charity! He was ever seeking for the good that was in a man. His trust in human nature was extraordinary. How many people he helped financially it is impossible to tell. Of course his generous nature was taken advantage of, and to the end of his life it was the easiest matter to get money out of him with a tale of woe. Indeed, so often was he preyed upon that I had to ask him as a matter of course, "who has been 'doing' you last." Then with a laugh he would tell me the specious story by which some rascal had "borrowed" money of him, but never with any bitterness, and always with an expression of pity for the poor devil who was driven to such a strait. Some people might think it was because he was simple—and he was simple in a large way—but his being imposed upon was not due to simplicity, but entirely to his faith and the fundamental goodness of his nature, and though well aware he was being deceived, he knew that many whom he had helped were both deserving and grateful. No one will ever find out who he helped and how he helped them.

Then the courage of the man! For some years he had a perfect knowledge of the deadly nature of his complaint. Time and again death had stared him in the face, but as soon as he recovered, though well aware that his life hung on a thread he resumed his work with unabated energy. He knew that if he took things quietly he would live for years, but he preferred a period of work, however short, to living a few more years in idleness. A few weeks ago he had come north on one of his whirlwind expeditions to visit various tuberculosis institutions in order to find the best means to help his stricken fellow creatures, for whom he had instituted the Papworth Colony. Though manifestly feeble he was bright and cheerful, making light of his infirmities, even jesting at them and determined to die as he had lived.

These words give but an imperfect picture of a great personality.

Dr. C. E. DOUGLAS (Cupar, Fife) writes:

The death of Sir German Sims Woodhead brings to many outside his immediate circles a sense of personal loss. It takes the present writer back to those days, away in the middle seventies, when we were both active members of the Edinburgh University Athletic Club. For Woodhead was not only a keen and earnest student; he was a brilliant Rugby half, and the most graceful sprinter of his time, a many-sided youth, full of ideas. Politics were a joy to him, and his ardent mind was full of schemes and of hopes. A total abstainer even then, he would have all men be as himself. Of purely English blood he had, one would have said, the *perfervidum ingenium Scotorum*, and all through his life was dominated by the desire to be doing in the service of man. When the war came he flung himself into action, and it is probable that the overwork which he underwent brought on the disorder which eventually proved fatal. But even after the war, handicapped as he was by illness, he had yet time to do something more for his fellow men. In the summer of 1919, not long before the Cambridge meeting, he was in St. Andrews, fully alive to the important step that was being made by Sir James Mackenzie, and actually going about to beat up supporters for the Clinical Institute scheme. And it must be only a few weeks since the writer saw him, alas! for the last time, on his way back from St. Andrews where he had been making another visit to this the last great movement with which he was to be connected. It is over now, the day's work for him is done; but his old friends will not forget his ardent spirit, his keen sagacity, his ever ready, kindly smile. *Ave atque vale.*

DR. WILLIAM RATTRAY PIRIE, O.B.E., died at Aberdeen after a long illness, on January 5th, at the comparatively early age of 53. He was educated at Aberdeen University, where he graduated M.A. in 1888 and M.B. C.M. (with distinction) in 1892. He subsequently studied at Leipzig and Vienna, and was appointed assistant to the professor of medicine at Aberdeen in 1894. He became assistant physician to Aberdeen Royal Infirmary, and later honorary physician and lecturer on clinical medicine. He was also physician to the Institute for the Deaf and Dumb, Aberdeen, and was a certifying factory surgeon. During the war he was attached to the 1st Scottish General Hospital with the rank of Major, R.A.M.C.(T.), and he was afterwards a member of the Pensions Board. In recognition of his work during the war he received the O.B.E. He is survived by his widow and one son.

The Services.

DEATHS IN THE SERVICES.

Colonel John Thomas Brownrigg Bookey, C.B., Bengal Medical Service (retired), who died at Bournemouth on November 19th, 1921, aged 74, had probably taken part in more Indian Frontier wars than any other officer of his day. He was born at Carnew, Wicklow, and was educated at Trinity College, Dublin; he took the L.R.C.P.Edin. and the L.R.C.S.I. in 1871, and entered the I.M.S. on March 30th, 1872. He attained the rank of colonel on May 2nd, 1900, and retired on June 16th, 1905. For twenty-seven years (1873 to 1900) he served in the Punjab Frontier Force. He had a long list of war service, having served in no less than eight campaigns on the Indian Frontier, besides the China war, as follows: Jowaki campaign, 1877-78, medal; Mahsud-Waziri, 1881; Burma, 1886-87, operations of 2nd and 5th Brigades, and Wuntho expedition, mentioned in dispatches, two clasps; Hazara, 1888, dispatches, clasp; second Miranzai, 1891, dispatches, clasp; Waziristan, 1894-95, dispatches, clasp; Malakand, 1897, dispatches, medal; China, 1900, dispatches, medal with clasp, and C.B.; Waziristan, 1902, dispatches, clasp. He received the C.B. on November 29th, 1900, for the China war, and a good service pension on June 16th, 1902.

Lieut.-Colonel Bernard Doyle, Bengal Medical Service (retired), died in London on November 28th, aged 71. He was born at Enniscorthy on September 16th, 1850, and educated at Trinity College, Dublin, where he graduated M.B. and B.Ch. in 1875. Entering the I.M.S. as surgeon on March 31st, 1876, he became surgeon lieutenant-colonel after twenty years' service, and retired on July 30th, 1902. After five years spent in military employment, during which he served in the Afghan war of 1878-80, and received the medal, he took civil employment in the Punjab, where he served as Deputy Sanitary Commissioner, as medical officer of Jhind State, and as civil surgeon successively of Ambala, Delhi, Firuzpur, and Peshawur.

Lieut.-Colonel Joseph O'Brien, Bengal Medical Service (ret.), died at Dewstead, Instow, Devon, on December 29th, 1921, aged 77. He was born on January 8th, 1844, the elder son of Michael Joseph O'Brien, of Dungannon, Waterford, and educated at Queen's College, Cork, and at the Ledwich School, Dublin. He graduated M.A. in 1869 and M.D. in 1870 at the Queen's University, Ireland; he took also the M.R.C.S. in 1869 and the L.R.C.P. and S. Edin. in 1870. He entered the I.M.S. on April 1st, 1870, became brigade-

surgeon-lieutenant-colonel in 1893, and retired with an extra compensation pension on August 19th, 1898. His first ten years' service were spent in military employment in the Assam Light Infantry, and during this time he served on the North-East Frontier, in the Naga Hills campaign of 1879–80, when he was present in the action at Koruma, was specially mentioned in dispatches in 1880, and received the frontier medal with a clasp. In May, 1881, he went into civil employ in Bengal, where he served as civil surgeon of Arrah, Bardwan, and Darjiling successively. In April, 1892, he was appointed Professor of Anatomy in the Medical College, Calcutta, and second surgeon to the College Hospital, appointments in which he had previously acted in 1884–5; he held these posts till his retirement. The late Colonel Bartholomew O'Brien, I.M.S., was his younger brother.

Major Laurence Campbell Vigor Hardwicke, R.A.M.C.(T.F.), died in the Military Hospital at Haifa, Palestine, on December 10th. He was the younger son of the late Mr. John Hardwicke of Portishead, Somerset, and was educated at Edinburgh, where he graduated M.B. and Ch.B. in 1904, and took the special certificate for tropical diseases. After filling the post of resident medical officer of Paddington Infirmary he entered the Egyptian Medical Service, where he served as medical officer of the Assouan reservoir district, with medical charge of the hospital and engineering works of the Assouan dam. He took a commission as lieutenant, R.A.M.C.(T.F.), and medical officer of the 1st Battalion of the City of London Regiment, the Territorial battalion of the Royal Fusiliers, on July 22nd, 1905, becoming captain on January 22nd, 1909, and major on July 23rd, 1917; he served as such throughout the war.

Surgeon Commander Thomas Francis O'Keeffe, R.N. (retired), died at Richmond on December 23rd, aged 47. He graduated M.B., B.Ch., and B.A.O. in the Royal University, Ireland, in 1899, after which he entered the navy, attaining the rank of surgeon commander on February 1st, 1915, and retiring in 1920.

Medical News.

THE Home Secretary has appointed Lieut.-Colonel P. S. Lelean, C.B., C.M.G. (formerly of the Royal Army Medical College), to be an inspector under the Cruelty to Animals Act, 1876, which relates to experiments on living animals.

IN view of the importance of the early diagnosis of small-pox the London County Council has issued to medical practitioners in the metropolis a circular regarding the arrangements under which in doubtful cases the certifying practitioner confers with the medical officer of health of the borough. Should a further opinion be required, on application to the Public Health Department of the Council, 2, Savoy Hill, W.C.2 (Tel. No. Gerrard 3641), the services of Dr. Wanklyn will be available at any time of the day or night and during week-ends.

A COURSE of twelve lectures on the management and feeding of infants and young children will be given to medical practitioners by Dr. Eric Pritchard at the St. Marylebone General Dispensary, Welbeck Street, W., on Wednesdays and Fridays at 6 p.m., commencing on February 8th. Practitioners attending the course will be entitled to attend the infant consultations at the Dispensary on Tuesdays and Thursdays at 11 a.m. and 3 p.m. respectively, when demonstrations will be given. Opportunities will also be afforded of visiting on Saturday afternoons the Nursing Training School at Golders Green.

THE annual dinner of past and present students of the Royal London Ophthalmic Hospital (Moorfields) will be held at the Langham Hotel, on Thursday, February 9th, at 7 for 7.30 p.m., under the presidency of Dr. James Taylor, consulting physician. The price of tickets (excluding wine) is 15s.; application should be made to Sir William Lister, 24, Devonshire Place, W.1.

AT a meeting of the Medico-Legal Society, to be held at 11, Chandos Street, W.1, on Tuesday, January 17th, at 8.30 p.m., Professor Harvey Littlejohn will read a paper on "The proof of live birth in criminal cases."

AT the National Colonial Exhibition at Marseilles this year a congress of public health will take place, from September 11th to 17th, under the presidency of Dr. Paul Gouzien, President of the Superior Council of Health for the French Colonies. Further information may be obtained from the Central Organizing Committee, 55, Rue Paradis, Marseilles.

DR. LOUIS CASSIDY, F.R.C.S.I., has been elected Master of the Coombe Lying-in Hospital, Dublin, in succession to Dr. MacLaverty, whose period of office has expired.

THE period for which Mr. G. B. Mower White, F.R.C.S., was appointed honorary surgeon to the Royal Northern Hospital (formerly the Great Northern Central Hospital) having expired, he has been appointed emeritus surgeon in order that his services may be retained.

SIR ARTHUR KEITH will give six Hunterian lectures in the theatre of the Royal College of Surgeons, Lincoln's Inn Fields, on the facial characteristics of living races of mankind, illustrated by specimens from the collection of human osteology in the museum of the College. The first lecture, to be delivered on Monday, January 16th, will deal with the facial characters of the Australian aborigines and allied native people; the second, on January 18th, with the negro and negroid types of face and skull; the third, on Friday, January 20th, with the Mongolian face and its modifications; the fourth, on January 23rd, with the European face and its chief variations in type; the fifth, on January 25th, with the study of certain aberrant types—bushmen, Eskimo, Lapp, and Ainu; and the sixth, on January 27th, with the facial characteristics of the races native to India. The lectures will be given on each day at 5 p.m.

THE number of deaths from influenza in the week ending January 7th is stated provisionally as follows: For the great towns, 795; for London, 352 (151 in the previous week).

POST-GRADUATE courses will be given during the next three months at the National Hospital for the Paralysed and Epileptic, Queen Square, W.C.1, as follows: (1) A course of clinical lectures and demonstrations; (2) a course of neuro-pathology; (3) a course of six lectures and demonstrations in neurological ophthalmology. The complete syllabus and information regarding fees may be obtained from the Dean of the Medical School, Dr. C. M. Hinds Howell. Courses (1) and (2) will begin on Monday, January 16th, and Course (3) on Wednesday, February 1st.

DR. IAN MACDONALD of Huelva and Seville, Spain, has been elected a corresponding member of the Society of Surgeons of Paris.

MUCH interest is being shown by the American medical profession in a series of questions put by the *Journal of the American Medical Association* to over 54,000 practitioners in the United States on the uses of alcohol; over 30,000 answers have already been received and are being examined. The purpose of our contemporary is to obtain an authoritative expression of opinion from the medical profession on alcohol as a therapeutic agent. The inquiries have been sent to every other practitioner whose name appears on the mailing list of that journal, and to some 10,000 other practitioners throughout the country. The questions relate to the type of practice in which the practitioner is engaged; whether he regards spirits, beer, and wine as necessary therapeutic agents in the practice of medicine; whether in his experience unnecessary suffering or death has resulted from prohibition; how often he has found it necessary to prescribe these liquors; and whether he considers restrictions should be imposed upon members of the medical profession in prescribing them. The answers will be tabulated.

A MONUMENT to J. B. A. Chauveau, formerly president of the Académie des Sciences and of the Académie de Médecine and professor at the Natural History Museum at Paris, is to be erected at the Veterinary School at Lyons, where his principal discoveries were made.

ACCORDING to the *Wiener klinische Wochenschrift* the medical profession in Brazil have collected the equivalent of 150 to 160 million kronen to relieve distress among the medical profession in Austria and Germany.

THE late Mr. William Henry Clarke, of Southwick Crescent, Hyde Park, who died in October, 1921, leaving £70,124, has bequeathed £500 each to the London Hospital, Middlesex Hospital, St. Mary's Hospital, West London Hospital, St. Thomas's Hospital, Guy's Hospital, University College Hospital, and King's College Hospital; £300 each to the Cancer Hospital, Fulham Road, East London Hospital for Children, the Florence Nightingale Hospital, the Chelsea Hospital for Women, and St. Bartholomew's Hospital; £250 to the London Fever Hospital; £200 each to the Metropolitan Hospital, Kensington Dispensary and Children's Hospital, and the Poplar Hospital; £100 each to the Royal Dental Hospital, Leicester Square, the Paddington Dispensary for the Prevention of Consumption, Queen Charlotte's Lying-in Hospital, Royal London Ophthalmic Hospital, St. George's Hospital, St. Paul's Hospital for Skin and Genito-Urinary Diseases, Hospital for Diseases of the Heart, Westmoreland Street, W., Lock Hospital, and St. Peter's Hospital. After the payment of these and other legacies the residue of the estate is left to such institutions, societies, or nursing homes as assist or provide for persons of moderate means who may not be able or eligible to benefit under the National Health Insurance Act or old-age pensions. Under the provisions of the will of his sister, Mary Ann Clarke, he appoints £9,500 to various hospitals and charitable institutions, and the ultimate residue of her estate is devoted to the Church Army, the West London Hospital, and the National Lifeboat Institution.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

ANAESTHETICS IN GENERAL PRACTICE.

DR. GEORGINA F. MALDEN (Anaesthetist, Ayr County Hospital and Ayr Maternity Hospital) writes in reply to "M.B.'s" inquiries:

1. The safest and simplest method in anaesthetics is to give chloroform, followed by ether, from a drop bottle on a Schimmelbusch mask, the open method. The mask should be covered with lint, or preferably domette, and the drop-bottles fitted with rubber corks. The anaesthesia should be induced with chloroform, and when fully established maintained with ether, unless specially contraindicated. If the operation is a long one chloroform may be given at intervals during it. It is better not to give a preliminary hypodermic injection of alkaloids if chloroform is to be used. During the past year I have used this method in about 500 cases of every kind, and found it quite satisfactory for both major and minor operations. The amount of ether used is rather large, but decreases as the anaesthetist becomes more skilful.

2. In midwifery I use chloroform only, by the same method, for ordinary operations, such as putting on forceps; for difficult forceps cases and Caesarean section chloroform, followed by ether, given as above.

3. It is possible to use only ether, but the objections are the unpleasant sensations it causes in a conscious patient and the difficulty of obtaining anaesthesia in a powerfully built patient with ether only. Ether must not be used in infants and small children for operations on the throat or mouth, or if a cautery is being used above the level of the patient's hips.

LETTERS, NOTES, ETC.

DR. A. C. MAGIAN of Manchester asks us to state that he is incorrectly described in the current *Medical Directory* as an official of the Manchester Medical Society. The reference, he states, should have been to the Medico-Surgical Society, which is not mentioned in the list of societies in the *Directory*.

IN response to the appeal of the librarian of the British Medical Association in our issue of December 17th, 1921, page 1060, Dr. Samuel Davidson, of Mansfield, Kelso, has been good enough to send Vol. xxxiv of the *Transactions* of the Edinburgh Medico-Chirurgical Society, thus making the series in the library of the Association complete.

OTITIS MEDIA IN INFANTS.

DR. CHAS. J. HILL AITKEN (Kilnhurst, near Rotherham) writes: During the influenza epidemic I visited a baby of 18 months whose symptoms was so indefinite that I labelled the case influenza. At my second visit the mother mentioned that the baby had been putting his hand up to his left ear as if in pain. I ordered wool pledgets with hot oil to be pushed into the meatus. The following day the mother told me the baby had evidently been relieved as he no longer put his hand up to his ear. The baby picked up as one would expect in a case of influenza and then apparently had a relapse. This second stage of the illness continued beyond anticipation and was characterized by no definite locating of symptoms. The marked symptoms were irregular fever, anorexia, sleeplessness, and extreme irritability in a very good-tempered baby. I then read in the BRITISH MEDICAL JOURNAL of otitis media in infants and recommended persistent pushing hot pledgets of oil in the ear—this although I could see no signs of ear trouble. A fortnight later the baby was so ill that I had a second opinion and was told there was no signs of ear trouble. Two days later a free discharge came from the left meatus and within a few hours the baby was calling for food and slept quietly for several hours; it has been well ever since; the discharge very soon dried up. Possibly an aural expert might have diagnosed the case earlier, but no aural expert was available.

A SOLUTION OF THE TIPPING PROBLEM.

As is well known, several attempts have lately been made to get rid of the wellnigh universal custom of "tipping" hotel servants. The practice has grown to such a point that in some cases the departure of a guest has come to resemble an escape from a swarm of tax collectors. The managements of leading hotels have long recognized that this state of affairs has become a deterrent to travellers and is a reproach to themselves, and are now trying to modify it. In some cases, especially in Italy, the system has been instituted of charging a fixed percentage on the bill for service and distributing this according to a regularized scale among the staff. This plan has not been entirely successful because every servant knows exactly what he or she will receive, and thus the stimulus of the hope of increased reward from efficient service is eliminated. A medical man, writing from the Winter Palace Hotel, Cimiez, Nice, tells us that this difficulty has been overcome by the management of that hotel. There each guest pays a fixed percentage on his account for service, but for this he is allotted shares in a so-called bonus fund, and these shares he himself distributes among the employees with whom he is brought in contact, in the proportions he thinks they deserve. Thus the stimulus of competition is introduced, because each employee knows that unless the service rendered is good, his or her proportion of the bonus fund will be diminished. This plan appears to work well—at all events, our correspondent tells us that he has never enjoyed more efficient or more cheerful service. Nor do the employees of this hotel accept "tips" in cash. Our correspondent states he has tempted them and failed.

MOTOR CARS: SPARE PARTS.

"M.A., M.D." writes: I note the other day a growl from a fellow practitioner who has been hung up by the "*pro forma* invoice" nuisance. It is not fair to condemn all English manufacturers, as instance my own experience. I have for the past ten years run a "Standard," and have always experienced the most courteous treatment at their hands. When spare parts, etc., were needed they usually came by return post, and have even been put on the train the same day in response to a wire. The invoice follows later. They are always willing to give full advice either by letter or telephone.

GAMES FOR GIRLS: A DISCLAIMER.

DR. MARGARET G. THACKRAH (London, W.) writes: May I state that the remarks attributed to me, in a report of a meeting which appeared in the *Daily Mail* of January 5th, were those of another speaker? The meeting, which was on the subject of games for girls, was held on January 4th, in connexion with the Conference of Educational Associations, at University College. A shorter report appeared in the *Evening Standard* of January 5th. The statistics quoted were also erroneously attributed to me, the only sentence which was mine being one that referred to the condition of the heart. I should like to say that I entirely dissociate myself both from remarks and statistics.

A DISCLAIMER.

DR. W. A. JOLLY, Professor of Physiology in the University of Cape Town, informs us that he has observed that his name is being used by Mr. Mehnarto in Berlin in advertising a serum connected with trypanosomiasis. "This," Dr. Jolly writes, "is entirely without my authority, and in defiance of my warning to him not to make use of my name."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 25, 28, 29, 30, and 31 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 26 and 27.

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All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.